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ANNUAL REPORT

OF THE

SECRETARY OF INTERNAL AFFAIRS

OF THE

COMMONWEALTH OF PENNSYLVANIA.

PART III.

INDUSTRIAL STATISTICS.

VOLUME XXVII.

1899.

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REPORT

OF THE

Bureau of Industrial Statistics.

COMMUNICATION.

Department of Internal Affairs.

Harrisburg, Pa., July 16, 1900.

To His Excellency, William A. Stone, Governor of the Commonwealth of Pennsylvania:

Sir: In compliance with the requirements of the Constitution, I have the honor to submit herewith, for transmission to the General Assembly, the twenty-seventh annual report of the Bureau of Industrial Statistics, the same being Part III of the reports of this Department.

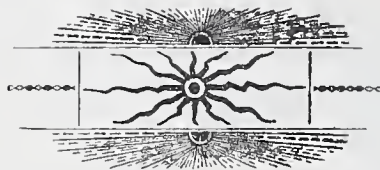
I am, very respectfully,

Your obedient servant,

JAMES W. LATTA,

Secretary of Internal Affairs.

181922



LETTER OF TRANSMITTAL.

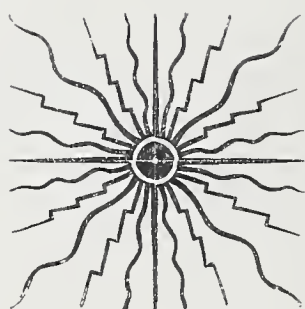
Harrisburg, Pa., July 16, 1900.

Hon. James W. Latta, Secretary of Internal Affairs of the Commonwealth of Pennsylvania:

Sir: I have the honor to present herewith the twenty-seventh annual report of the Bureau of Industrial Statistics. The report covers the manufacture of cotton and wool, with illustrations, the entire production of pig iron, steel, iron and steel rolled into finished form, tin plate, a continuation of the comparative series of 1892, and the comparative series of 1896.

Very respectfully,

JAMES M. CLARK,
Chief of Bureau.



INTRODUCTION.

The relation of the law to economics was the subject of an address delivered by General James W. Latta, Secretary of Internal Affairs of Pennsylvania, before the Sixteenth Annual Convention of the National Association of Officials of Bureaus of Labor Statistics, at Milwaukee, Wis., July 11, 1900. As this question is one that appeals to the best thought of every student of economics, place is given to the address in this report, and it is made preliminary to other matter.

The next subject presented is an exhaustive treatise upon the cotton goods industry of Pennsylvania, followed by one of similar character upon the woolen goods industry. Both of these articles will be read with much interest, showing as they do, with great minuteness, the early struggles and difficulties to be contended with in placing these two industries in their present pronounced position among Pennsylvania's manufacturers. Interest is added by the illustrations given.

For the interior views, showing the most modern machinery and appliances for the manufacture of cotton and woolen fabrics, lace curtains and upholstery goods, the Bureau is indebted to the Aberfoyle Manufacturing Company of Chester, and The Bromley Manufacturing Company, John G. Carruth and Company, Folwell Brothers & Company, the Oldham Mills, M. A. Furbush & Son Machine Company, and the John B. Stetson Company, of Philadelphia.

The 1892 comparative series, that is the series where comparison is made of the same establishments for each and every year back to and including 1892, is made up of 44 industries, represent 354 establishments, and shows the increase or decrease in days of employment, number of persons employed, aggregate of wages paid, yearly earnings, daily wage and value of the production.

The 1896 comparative series, which follows that of the 1892 series, is made up of 93 industries, representing 855 establishments. In this series comparison is made with 1896, including the intervening years, and shows the increase or decrease in wages, etc., same as in the 1892 series, with the addition of capital invested and the cost of the basic materials.

In the presentation of the cotton and wool census for 1899 the figures represent the entire business done in the State, including

capital invested, show classified wages paid to males, females and children, quantity of output and value, and also show the number of power looms, hand looms, spindles, cards, combs, pickers, knitting machines, sewing machines, ribbers, garnets, braiders, etc.

Comparison is made with preceding years of the entire production of pig iron in the State, its value, cost of the basic material, days of operation, persons employed, aggregate of wages paid, yearly earnings and daily wage.

Comparison is made for the same years of the tonnage of steel, bessemer, open hearth and crucible.

A like comparison for preceding years is made of the output of iron and steel rolled into finished form. This includes bars, strips, shapes, rolled axles, etc.; plates and sheets; cut nails and iron and steel rails, but does not include billets or muck bar. The same detailed information as to wages, earnings, etc., is shown in rolled iron and steel as is set forth in pig iron.

In the manufacture of tin plate, both of the black plate works and dipping works, a complete census is given as to production, wages, etc., and comparison made with preceding years.

Attention is especially called to the largely increased number of employes in all of these leading industries, to the increased earnings and wages and to the increased production, all of which is fully set forth in the analysis at the close of the report. When it is reflected what the manufacture of iron and steel is to Pennsylvania; what it is to the United States, and what it is to the world, a study of the analysis will be of more than ordinary interest. It shows how Pennsylvania produced in 1899 almost double the amount of pig iron she produced in 1894; how this production was more than 70 per cent. of the entire production for 1899 of Great Britain; how Pennsylvania produced 150 per cent. more steel in 1899 than in 1894; how this production was nearly 29 per cent. in excess of the entire production of Great Britain; and shows how, in the manufacture of tin plate, in which Pennsylvania is so much interested, the production in the United States for 1899 was 435 per cent. in excess of the production of 1894, and shows Pennsylvania's relation to this large increase.

OF THE LAW AND OF ECONOMICS.

An Address Delivered by General James W. Latta, Secretary of Internal Affairs of Pennsylvania, before the 16th Annual Convention of the National Association of Officials of Bureaus of Labor Statistics, Milwaukee, Wisconsin, July 11, 1900.

The wisdom of the judge has often been questioned, his integrity sometimes assailed, but the law he interprets has rarely been defied. Whatever denunciation may reach other governmental functions, the law and its administration have always commanded respect, not for the awe it inspires or the fear it engenders, but for the inherent regard its majesty invokes. The majesty of the law is the only sovereign the Republic knows. Puncture the integrity of its enforcement and the throne itself is threatened. The complaints of the disappointed suitor, the infrequent preferences of prejudice, the incidental exhibitions of passion, the rare suspicions of corruption, the occasional uncorrected errors of judicial incapacity never disturb the concession to the august supremacy of the law. Improvident corporation legislation, pre-election legislation providing methods that may subsequently be made operative to overcome the popular will, obnoxious statutes, the repeal of which their rigorous enforcement sometimes coerces, have in no wise impaired the exercise of authority for the preservation of right, the prohibition of wrong. The supreme power of the State still commands. The rule of action it prescribes is still the law.

The State protects itself against those who would destroy it, society against crime, the individual against injury. Against the person of the convict and the property of the delinquent the law executes its decrees. In the one instance the injury done society is atoned for; in the other the wrongs done the individual are righted. The body answers for the crime; the property responds for the delinquency.

The system of rules and regulations which is recognized as the law that among men governs their intercourse with each other and protects society from crime, is that law of personal security whose supremacy commands respect, elicits obedience. The political environment that concerns the administration of the governmental functions that maintain liberty, resist invasion, subdue riot, suppress insurrection, is the propagator of the more exalted senti-

ment of patriotism, the patriotism that recognizes the flag of our country as the common conservator of our national dignity, the common arbiter of our national destiny. "In everything which concerns civil and political liberty," says an eminent text writer, "no system has yet been devised that can be compared with the free spirit of the English and American common law."

The common law is a creature of conditions and necessities. It is custom and usage gradually adopted, sanctioned by the courts. It was before legislatures were, and has been since. All law did not begin by legislative consent, and therefore the common law is not as one of the earlier writers phrases it "statutes worn out by time." A better comprehension of its origin and stability is supplied by Sir Matthew Hale. "It is not," he says, "the product of the wisdom of some one man or society of men in any one age, but the wisdom, counsel, experience and observation of many ages of wise and observing men." It is indigenous where constitutional liberty thrives; elsewhere it is an exotic.

Wherein had this free spirit of the common law its earliest manifestations? The common law is a rich illustration of the processes of evolution. Born of the villages in the jutting peninsulas that narrow the Baltic, and their adjacent lowlands, its traditional developments "preserved in a nation's memories" reached their fullest fruition in the treaty King John made with his barons in the beginning of the thirteenth century. The age of traditional rights was to pass away and "the age of written legislation of parliaments and statutes was to come." The youth in the academy, in his first attempt at English composition, rarely fails to exploit something of Runymede, the Barons, King John and the charter. The profoundest statesman finds inspiration in the theme, and so it will ever be.

The full intendment of this ancient declaration is frequently overlooked. Had it been confined to the barons, as their prominence in forcing its initiative would indicate was its purpose, its perpetuity would never have been stamped, as it has been, upon free institutions everywhere. The rights secured were "not of baron and churchmen only, but of freeholder and merchant, of townsman and villein." Where the privilege of the simple freeman is not secured by the clause which primarily affects the baron, a supplementary clause is added to define and protect his rights. The merchant, it was agreed, might go out of the kingdom and return at his pleasure. He was to be protected by a uniform standard of weights and measures, and allowed to transact his business free from arbitrary tolls and impositions. Trade was invited from abroad, and the foreign merchant encouraged to visit the kingdom by the protection accorded him. No fine could be levied to the utter ruin of anyone, and the villein or rustic by fine or amercement was not to be deprived of his

horses, his carts, his ploughs, or implements of husbandry. An exemption law had for the first time declared its purpose. One of the concluding clauses is of forceful significance. It embodies provisions so essential to the maintenance of constitutional government that with but little modification they have ever appeared in the fundamental law of every free state. "No freeman shall be taken or imprisoned or disseized or outlawed or exiled or anywise destroyed; nor will we go upon him, nor send upon him, but by the lawful judgment of his peers or the law of the land. To none will we sell, to none will we deny or delay, right or justice!"

What were the contemporaneous opportunities elsewhere, save under the favor of royal prerogative, where the free spirit of the common law was unknown? Mark the contrast of these insular concessions with the interruptions and restrictions that beset the trader in the Latin countries of the Continent. The king's right to the market was assured by the law. When his vintage came to town, the innkeeper closed his doors, the wine shop ceased to do business until His Majesty's stock was disposed of. And there were other formidable rivals; the Seigneur and Abbe came after the king and held the monopoly. "Where king, noble, or cleric turned tradesman for the nonce, the tradesman as such went promptly to the wall."

The king, by the fiction of a divine right, was prone to be a law unto himself. The obedience he yielded to his Parliament was a reluctant obedience. The distinction between the constitutional sovereign and the sovereign of divine right, the sovereign absolute, is forcefully suggested in a neatly constructed dispatch of Lord Roberts reporting one of his recent operations in South Africa. "I hope that Her Majesty's government (not her majesty) may consider the event satisfactory, occurring as it does, on the anniversary of Majuba." Learned jurists interpreted the common law, scholarly commentators expounded it, the king forgetful of his pledges sometimes interrupted the free spirit of its liberty. Though its force was at times suspended, its substance was never impaired. Cromwell had overcome the divine dynasty and was ready to accept a constitutional monarchy; but the King was utterly untrustworthy, and the army defiant, intolerant, arrogant. The peaceful revolution later on achieved what its bloodier predecessor had practically accomplished, and the law was forever freed from other kingly interruptions at home.

The King was not so content to desist from interference with the operations of the common law in his colonial possessions. It was no exotic when transplanted to the temperate zones of the North American Continent. Here it flourished with prodigious growth. The Mayflower Pilgrims before they secured their landing place solemnly

covenanted, in the cabin of their vessel, that the will of the majority should be the law of the land. The *Welcome* bore across tempestuous seas to her Pennsylvania destination the "Frame of Government," drafted by the Founder of the Province, as the creed of his "Holy Experiment." Of its many potent declarations there was no more forceful deliverance than this, "Any government is free to the people under it, where the laws rule and the people are a party to these laws." How nearly he had reached the phrase, with which amid the perils of our civil war the immortal Lincoln subsequently electrified the nation, "A government of the people, for the people and by the people shall not perish from the earth!" More than one hundred and fifty years before the United Colonies declared themselves a free and independent nation they were approaching perilously near a Republic.

An American writer of much reputation has recently declared in a magazine contribution of especial value, "The true principles of religious tolerance and political equality in all their bearings were beyond the grasp of the seventeenth century." The qualification, "in all their bearings," preserves the writer's conclusions to a better fate than a critical analysis would otherwise accord them. The intolerance that was furious in Great Britain, relentless in Massachusetts, was unknown in Pennsylvania. That Province greeted every creed, doctrine and sect alike. Within its limits every man might in truth and fact worship God according to the dictates of his own conscience; nor could he, as the humorist has phrased it, prevent every other man from worshiping God according to the dictates of his. So conspicuous was Pennsylvania for its absolute freedom of worship, amid these prevalent intolerances that Goldwin Smith has styled the Province "A religious museum." The exhibition is still on view without charge. Maryland, Rhode Island and New York were in their constructive period scarce a whit behind. Political equality had a more universal acceptance than religious tolerance, certainly upon this side of the Atlantic. The few years of theocratic government in Massachusetts, that restricted the suffrage to the church, disappeared before the seventeenth century went out. Representative government in some form prevailed in all of the colonies, and the people seemed never better satisfied than when through their representatives they were either delaying payment of or cutting down the salaries of their royal governors.

The common law with its free spirit of liberty finds a more congenial home wherever the flag floats "over the land of the free and the home of the brave." It is fitted alike for all colors, all races, all conditions. Its firmest abiding place has been the United States of North America where the amplitude of its far-reaching equalities includes Saxon and Tenton, Latin and Celt, Slav and Scandinavian.

The distant orient feels the stimulus of its attainable possibilities, and the islands that were of the Spanish Main are looking to the new life its guarantees assure. It is as beneficent in peace as it is rigorous in war. It has brought revolution to success, routed rebellion, suppressed insurrection, made a nation and set the bondman free. It has created generals capable for the field, jurists learned for the forum, statesmen skilled for the cabinet. The state, the church and the family have ever been its especial trusts, and to them all it has faithfully discharged the full purpose of its mission.

In the early middle ages nearly all there was of learning was embodied in theology or law. Scarce any other branch of knowledge was yet of sufficient compass to maintain for itself a separate establishment. Questions of industrial policy were treated of as incidental details in the one or the other of the two systems. It may not be inappropriate therefore, economics now conducting its own independent establishment, to place it in touch with an acquaintance of its youth for a brief association.

More than a century since it began to be accepted with some crudity that the lives men lead and the callings men pursue in the relations that sustain the one and the conditions that support the other were collectively deducible to such principles as to evolve a science. As this acceptance grew to conviction, the philosopher sought to so apply the science as to deduce from it such a useful art that its application might inure for the general betterment. Known in its earlier conception as political economy, it has so broadened itself as to include as well, sociology, which though of junior creation now dominates it; and statistics still of later birth is also its close correlated adjunct. A science may be either the methodical collection of certain associated principles, causes and effects verified by observation, or it may be the result of the research of discovery or the application of invention. The ultimate mission of science is that it shall accomplish a practical and substantial purpose.

Economics is made up of environment. It is the scientific rendering of educated observation. The better intelligences accept its propositions, recognize its conclusions. The prudent and thrifty abide by its teachings. The ignorant and idle are restive under its requirements.

Man lives in an atmosphere of economics and yields unconscious obedience to its behests. On terms of closest intimacy with its operations, he yet is a stranger to the science as a science. The aim of life in the material spheres is the satisfaction of desires. This end is obtained by the unconscious obedience to the requirements of a science with which the seeker for the end has but a partial acquaintance. He prefers to accept the acquaintance for what it is

worth, rather than be burdened with the study that a broader knowledge demands.

Economics is a science that subtly formulates its judgments, subtly draws its conclusions. Its decrees are executed by the very virtue of necessity. The state is the master of society, enforces respect through authority, executes its purpose by the inherent strength of the laws it has created. Economics is so far dependent upon the state that it survives only upon the social structure the State preserves. Though neither of inspiration nor prophecy, economics stands to material life as a creed does to spiritual.

Roman civilization was never softened by the acceptance of a Christian faith. Whatever contributions its wise men may have made to its stability, they never scientifically adjusted economical conditions towards its permanency. There were discordant differences between its social classes. The central power claimed a fancied omnipotence. The irresistible laws of human nature were neglected. Patrician dignity was wounded if touched by the middle class. This estrangement was Rome's sorest trial in the hour of her greatest misfortune. The misfortune came when the northern barbarians overran the Provinces and the city itself. Savagery has always accepted modern civilization or disappeared before it. Not so with the ancient. The middle classes preferred its rough justice to the tyrannous exactions of the patricians. The Roman arms could not overcome the invasion, nor the influences of an effete and waning civilization persuade the savage hordes to accept it.

Economics has never failed to meet new inventions, new conditions. The trust was supposed to have dealt a staggering blow to the axiom that "Competition is the life of trade." Whether competition does not yet survive and is not yet ready with its blow to equally stagger the trust still awaits determination. Combination is the antithesis of competition. Trade is no stranger to either. In a modest way combination has been the engine to stiffen a breaking or advance a steady market. In a cruel way it has been a method to carry to commercial oblivion many who would have been glad to be permitted to be advantaged by its opportunities.

By the law a man may do what he will with his own. A cardinal tenet of the economic science is that all his belongings are his for the satisfaction of his desires and it is of his own free will whether he accepts or rejects the doctrines of religion. He must not violate the rights of his neighbor, otherwise his morals, his gains, his labor, his possessions are solely for his individual disposition.

The dogmas of the faith as expounded by the fathers were most seriously opposed, because it was contended that with their acceptance, man surrendered his free agency. If it has been forordained whatsoever should come to pass, then the purpose of man to work out

his own salvation has been denied him; it has been anticipated by a selection, in which he has had no part. The Christian church was rent in twain. Schism, creed and doctrine not content with intellectual combat drenched Continental Europe in bloody battle for more than half a century. But the Christian faith still survives and man is as fully recognized as a free agent in things spiritual as it is admitted he is in things material.

Is that free agency still conceded him in his material affairs? Has the economic principle of the personal disposition of possessions for the satisfaction of desires collapsed, or the law's provision that a man may do what he will with his own been suspended, because of existing social conditions beyond the reach of the economic art? Such would seem to be the conclusion of the distinguished scholar who presides at that eminent seat of learning, the Yale University. In his work, "Economics, an account of the Relations between Private Property and Public Welfare," Prof. Hadley subjects the question to this treatment. "Although laws," he says, "prescribing what a man may buy or sell have fallen into disuse, it must not be supposed that every man exercises his intelligence and pleasure to buy what will give him the most happiness." * * * "A large part of the expense of most people is regulated not by their own desires and demands, but by the demands of the public sentiment of the community about them." * * * "The standard of life in every family is fixed in large measure by social conventions." * * * "Although we have made much progress in the direction of economic freedom, it is a mistake to assume that the authority of custom in these matters is a thing of the past. With most men custom regulates their economic action more potently than any calculation of utility which they are able to make." There would be a loneliness about the result of such a calculation that would severely neutralize its utility, if custom were out of it entirely and individuality its only basis. Isolation is a bane to usefulness. Its saving antidote is companionship. The cloister and the closet life is a hindrance to development. Nature makes the whole world kin.

Man must be within society to be within the pale of economic authority. If he chooses to clothe or equip himself in a strange garb, deny the fashions and disport himself against the usages of society, he is outside its pale and its influence. His pleasures unfit him for social contact. If he is not of contact with his fellows, he is not of society and consequently not a subject for economic discussion. Custom is a king in society without judicial or legislative restraint. Obedience or exclusion is the alternative decree. Obedience would be less onerous if extravagances were curtailed, foibles diminished and waste eliminated. But these are of detail subject to change and controllable by usage, they in no wise impair the structure itself.

The social compact makes the state; the state preserves the social compact. Why seek to establish a standard of economic freedom apart from either the state or society? Without society and its customs and the state and its laws economics has no abiding place. Nomadic life, rural life, savage life need no touch of economic direction, seek no help from economic guidance. Out of society where will man find happiness? It cannot diminish his independence to be where happiness only can be found.

And then the learned author turns to the present business methods as another formidable barrier to the free exercise of individual judgment. "The success of advertising," he declares, "shows how little intelligence is habitually exercised in these matters." Solicitation so induces buyers that, as he deduces it, "three-quarters of them exercise no choice at all." The drummer, the newspaper, the poster, the five cent store and the bargain counter, to follow the professor's own forcible diction, are "the drums and trumpets" that abuse man's "nominal freedom" and "tell him in stertorian tones what he wants to buy."

A bargain like an agreement is a meeting of two minds, or in familiar parlance "it takes two to make a bargain." The satisfaction of desire or the right to do what he will with his own is not the purchaser's exclusive right. A like privilege prevails equally with the seller. The over-persuasion of the vendor in no way disturbs the right of the purchaser to think for himself. A horse trade is proverbial as a fine illustration of David Harum's paraphrase of the Golden Rule, "Do unto the other feller the way he'd like to do unto you, an' do it fust. In no other transaction are the faculties so strained, the wits so quickened, the lie so frequent, except the veriest guy venture upon the market. Is the shop-keeper the sole arbiter of his own bargain counter? He may at times lure the unwary, but he is so apt to meet not a few, notably of the other sex, equally quick witted with himself. If the merchant be at all fair in his ethics, may not his experience assure a better bargain than not infrequently would be induced by the crude notions of his customers? American women were never better dressed, American children were never better clothed than they are to-day. Americans were never better fed, never better housed than they are in this the close of this wonderful nineteenth century. An excellent fit and tasty pattern are the noticeable feature of the dress of women of every class, and men are a close second. Has not the trader, with his training, added something to these conditions, especially among those whose employment and situation have limited their opportunity for choice? Independent action cannot be measured by a failure to assert it where the right to independent action exists; nor economic freedom be impaired for lack of knowledge or opportunity to best maintain it.

For the present, it would seem, that society must be content with observation for a reasonable assurance of its betterment in diet and dress. Sociology demands a statistical basis, declines to infer and is slow to act on estimation. Its better philosophical suggestion is that as social statistics present the most delicate questions, "with facts themselves so elusive as to escape exact expression," correct analysis and interpretation are attended with much hindrance. Statistical data that would express the motives of men's actions are unattainable. If they were, it is admitted it would be seen how in many cases "the narrow line of family relation makes itself felt in the broader manifestation of social life." "The family is the important factor in the growth of population." "Family life is the foundation of the moral life of the community."

The family, the dwelling and the wage have been in many details subjects for wide sociological treatment from effective statistical data and classification. "All social conditions have intimate connections with the family and family life." While in France 14 per cent. of families consist of one individual, there are but 7 per cent. of such families in Germany and 3.63 per cent. in the United States. Everywhere there are more families than dwellings. In the United States there are 10.5 per cent. more families than dwellings. In the agricultural states of the south the excess is very small, while in Massachusetts it is 35 per cent., in Rhode Island 43.5, in New York 46.5. It is, of course, in the cities where there are the largest number of persons and families to a house. In New York 46 per cent. of the dwellings have one family, 11 per cent. two families and 43 per cent. three families and more. In Brooklyn 51 per cent. one family, 23 per cent. two families, 26 per cent. three or more, while Philadelphia has almost as many houses as families. Of Philadelphia it may also be noticed that despite the marked tendency towards decrease in the size of the family in cities, that city seems less affected by the decrease, and the number of persons to the family is greater there than in any of the larger cities of the country.

The tenement house and the apartment house are modern innovations. The tenement bodes of evil, unless its outside sanitary conditions for light and air, and its inside for ventilation and cleanliness, shall be controlled by official supervision. The apartment house is not the American home. It is a menace to the fireside. It offers relief from the cares of house-keeping, presents strong temptations to abandon family responsibilities, tends to lessen progeny, and extends enticing greetings to accept the gossipy comforts of its proffered idleness. With such a contemplation John Howard Payne's muse would never have been thrilled to the production of his unequalled verse. No such inspiration would ever have impelled the creation of the beautiful stanzas of "Home, Sweet Home." The law rarely given to sentimental demonstration is awake to the invasion

of the sacred precincts of the home. The state, when it delegates so great a power as the right of eminent domain to the railway corporation, exempts from its operations the dwelling house when in the occupancy of its owner. The railway may take for a just compensation all other property essential to the proper development of its franchise, but the home is preserved inviolate against intrusion.

The American wage is the highest wage anywhere. The body of workers is of the highest efficiency, and the results obtained from the American wage are the best results. Whatever improvidence sometimes attends the wage earner's expenditures, he so adjusts his means of livelihood to the prices of the necessities and comforts of life as to assure to himself a better social condition than is anywhere else attainable. His social contentment gives capital its confidence, and his steady employment at remunerative rates is the foundation for the best economic environment.

Hunger hinders progress. A poorly nourished community cannot be expected to be an enterprising community. Diet and the tenement, like food and raiment, are in responsive relationship. If men are better housed, it is conclusive that they will be better fed. Cleanliness follows, and health follows cleanliness. It is not so very long ago, as history measures time, since society ate with its fingers instead of its fork. A gentlewoman of France boasted that she had not washed her hands for eight days. Peter the Great was shunned at the Court of Elizabeth because of his uncleanly ways and that Court itself was quite culpable in a like direction. Lady Mary Wortley Montague, "the liveliest, wittiest, severest" was said to be the "dirtiest" woman of her time. Phillip II of Spain, commenting on a most important state paper submitted for his criticism, where reference had been made to the presence of lice in the location of which the paper treated, made the single marginal note, "they might have been fleas." That portion of our urban population living by the closest economy has better opportunity for cleanliness than in days not so very distant was permitted to princes and potentates. There is no house of modern construction without its bath, no matter how diminutive its proportions. The tenement, when sanitary inspection shall have wider enforcement, will be supplied with like facilities. The country side is apace with opportunities for like advantages which have already found place in city life.

Public authority has a closer grip on sanitation than ever before. There is a more generous disposition to deal with its exercise uncomplainingly. The aim of medicine is prevention rather than remedy. Every menace to the public health is sought to be brought within the purview of the law. Its police power is summoned to reach otherwise unsolvable problems. The Slaughter House cases, commonly so styled, where Louisiana to protect the health of the

city of New Orleans created a huge monopoly, which it was contended impaired privileges and immunities fundamentally guaranteed; the cases sustaining the various statutes of the several states regulating the practice of medicine, dentistry, pharmacy to protect the public against the ignorant and incompetent practitioner are of the numerous instances of the law's determination to invoke the police power alone, should other reasons be wanting.

Observe the contrast when learned men even were called upon to determine questions of like import in the olden time. A street in old Paris, on which was located a convent, was to be paved at the expense of the inhabitants. When the convent was solicited for its share of the contribution the abbess declined to respond, maintaining that the vows of her order invoked nothing in the matter of public cleanliness. On appeal to the ecclesiastical jurisdiction upon which rested the ultimate determination of the issue, the abbess was sustained upon the ground that there was no precedent for taxing religion in the interests of science. Municipal authority did not always choose to assert itself, but whenever it did its efforts were everywhere defied despite the ravages of disease and the frequent recurrence of the plague.

The college professor has latterly become a valuable instructor in the lessons of every day life, and his own better familiarity with those very lessons has by no means lessened his opportunities. Known heretofore only to his pupils, his faculty, in his class room and his study, the whole reading public now claim his acquaintanceship. His appearance on the lecture platform, his numerous contributions to magazine and periodical, his scholarly additions to literature, science, art, history, in book and pamphlet, have so widened his influence that the public as well as the student have the advantage of his attainments. Application of occurrence to principle, analysis, illustration have measurably enlarged the usefulness of the text book, to which, until recently, the professor's authorship had been almost solely confined. If the pupil was letter perfect in text book lore, he had a reasonable expectancy of a satisfactory acquaintance. Memory had not that intimate association with understanding which by a better developed system it is now sought to encourage.

The American people have but scant tolerance for inherited distinction, whether of title or based upon what some one else has done. On the other hand, the American looks kindly "upon military titles, upon professional titles, upon political titles." In themselves they represent achievement and stand for personal effort and success. When distinction is once won and worthily won, he who secures it never fails of appreciative recognition. All men who have won dis-

tion have contributed something to the state. None more than those who write.

Where is there more resourceful history, reminiscent and philosophic, riper scientific criticism, richer biographical review, than from his vast acquirements John Fiske has supplied to American literature? Where has the culture of the faculty been better presented for public appreciation than by Woodrow Wilson, Moses Coit Tyler, Franklin Henry Giddings, Benjamin Ide Wheeler? Who would ever have felt, despite of what he knew before, that he ever had close acquaintance with Napoleon and his times, after William Milligan Sloane has so opportunely drawn us to such an intimate relationship with that momentous period? Who will fail to render grateful tribute to John Bache McMaster for the exhaustive research which has enabled him, in such graceful deliverance, to acquaint us so accurately with every phase of the career of our great Republic, whether in the days of its cheering prosperity, or in the days of its grave vicissitudes? Who is richer in variety of attractive themes, presented with instructive method and in pleasing diction, than Harry Thurston Peck? Where is there better fulfillment of so modest an introduction, "This book is an attempt to apply the methods of modern science to the problems of modern business," than in Arthur Twining Hadley's substantial contribution to economic literature in his "account of the relations between private property and public welfare?"

THE COTTON GOODS INDUSTRY OF PENNSYLVANIA.

By John R. Kendrick.

Of all the fibrous materials which nature has provided for the comfort and enrichment of mankind, those which are gathered from the silkworm and the sheep's back, i. e., to say silk and wool, have probably been longest in use and are therefore entitled to most respect judged from the standpoint of antiquity and by reason of their easy adaptation to fabricating purposes.

If inquiry be made, however, as to what fibre enters most minutely and with most diversity into the protection of the human form and is most adapted to the thousand and one uses of domestic life, and to variations of climate as well, the fruit of the cotton plant must surely be accorded pre-eminence.

It is scarcely within the province of this article to attempt botanical inquiry into the discovery of the cotton plant and its various species, nor is it feasible in limited space to dwell lengthily upon the genesis of cotton manufacture either in the United States or Great Britain. To the latter country undoubtedly belongs the honor of first converting North American and other cottons into textiles for domestic uses, and for a long period of time England remained the chief destination of what may be termed "the American crop." Indeed, for a half century or more the anomaly was observed of shiploads of American cotton being transported at heavy cost to the spinning and weaving mills of Great Britain, the manufactured product being subsequently re-shipped to the American market for sale and consumption.

The American civil war, which lasted from 1861 to 1865, proved a cataclysm to the English cotton mills, for during that lamentable period the southern cotton planters' ports remained under a fierce blockade and the tilling of cotton had largely to cease to await the end of internecine strife.

Succeeding the close of the war between the states and the resumption of cotton planting, the cotton mills of New England resumed manufacture with more energy than ever, and while England gladly

resumed its consumption of the American staple, English exports to the states were visibly decreased and every succeeding decade has lessened the volume of foreign-made cottons to the United States.

Notwithstanding the colossal proportions both as regards capital invested and value of output of the textile industries of Pennsylvania and of Philadelphia in particular, neither the latter city nor the State at large has achieved extraordinary eminence either in purely cotton weaving or cotton spinning. New England from the post-colonial period became the conceded habitat of the cotton goods industry, and while Pennsylvania has in many and various ways proved a huge consumer of cotton yarns, woolen fabrics or fabrics of wool and cotton mixed have, until late years, absorbed the capital and energies of the mill owners and work-people.

Notwithstanding the precedence of New England over Pennsylvania in cotton weaving and spinning, the Quaker City had not a little to do early in the Nineteenth Century with the promotion of cotton planting, cotton weaving and the construction of cotton machinery. So early indeed as 1788 we find Richard Leake, an extensive cotton planter in Georgia, writing to Thomas Proctor, of Philadelphia as follows:

"The principal difficulty that arises to us is the clearing it (cotton) from the seed, which I am told they do with great dexterity and ease in Philadelphia with gins and machines made for that purpose. I shall esteem it a singular favor, your procuring me one, and I will thankfully pay whatever the cost of it may be. I am told they make them that will clean from thirty to forty pounds clear cotton per day and upon a very simple construction."

In 1742 a French planter at New Orleans, M. Dubreuil by name, had invented a cotton-gin for separating the fibre from the seed, which invention greatly stimulated the culture of cotton in that colony. Prior to Dubreuil's invention, the division of the seed from the pod had been effected by picking it from the tenacious fibre at the rate of one pound per day. This work was long performed in the evening by women and children or other members of the household and prevailed in the cotton-growing regions until an increased production demanded mechanical appliances. The first improved device for separating the seed and fibre was that of the Roller-Gin, a contrivance derived from the Orient and seemingly the most effective for the purpose until the invention of the famous Saw-Gin of Eli Whitney in 1793.

As to the technical features of the cotton-gin made in and around Philadelphia, and concerning which Richard Leake of Georgia, wrote to Thomas Proctor, the records are not quite clear, the inference being, however, that it was a foot-gin or some equally efficient instru-

ment much superior in its results and in ease of manipulation, to the rude hand-mill then employed in Georgia.

Another bit of interesting tradition is that cotton was grown at the commencement of the American revolution in Cape May county, New Jersey; Sussex county, Delaware; St. Mary's county, Maryland, and probably in other counties fairly contiguous to Philadelphia. It was the product of these counties no doubt, which resulted in the invention and construction of crude cotton-gins in and near Philadelphia.

In 1784, record is made of twelve bags of cotton being exported from Philadelphia to Liverpool and the shipments from Charleston and even from New York were of like insignificance.

These tiny exports, however, were precursors of an enormous business, for in 1795, South Carolina alone sent cotton to England to the value of \$1,109,653.

It was a little prior to this perhaps, that a society formed at Philadelphia principally with a view to cotton manufacture, and aided by the zealous efforts of Mr. Tench Coxe, an active member of the society and styled, "The father of cotton culture in America," influenced many intelligent planters to engage generally in the business. In 1792 also, a duty of 3 d. a pound was levied on foreign cottons, obtained chiefly from the West Indies and Brazil.



Short Staple or Green Seed Cotton; common in the Southern States.

Cotton, according to a learned authority, is an indigenous product of all intertropical regions and consists of a down or fine cellular hair attached to the seeds of plants belonging to the genus *Gossypium*, natural order *Malvaceoe*. The plants which supply the raw material for one of the greatest of modern industries and for the clothing of all nations, may fairly be ranked among the most valuable of nature's products. For the last five centuries, it has enlisted the scrutiny and thought of numberless learned writers, and while cottons more or less hybrid in their nature, have been traced to soils on either side of the oceans, some of the best authorities affirm that there are only seven species of cotton, the rest being merely varieties. These are:

1st. *Gossypium Arboreum*, Linnaeus, found in Ceylon, the Moluccas, Arabia, Senegal, etc.

2d. *G. Herbaceum*, Linn., growing in Siam, China, India, Italy, etc.

3d. *G. Sandwichense*. Prof. Parlatores. Indigenous to the Sandwich Islands.

4th. *G. Hersutum*, Linn., including Siamese, Bourbon, Upland Georgia and Louisiana cottons.

5th. *G. Barbadense*, Linn., comprising Sea Island and Barbados cotton with long staple.

6th. *G. Tahitense*, cottons from the Society Islands, Tahiti, etc., in the Pacific.

7th. *G. Religiosum*, Linn., including Peruvian and other cottons principally with seeds in adherent files.

Other writers have given new or provincial names to the several cotton plants, but their efforts to fix them as permanent species have only resulted in confusion.

"The culture of cotton in India," by Dr. Royle, is a trustworthy series of information on the botanical part of the subject.

The cottons most in demand among manufacturers are those of the western world, viz: The Sea Island and New Orleans or Uplands varieties which are altogether unequalled by the products of any other part of the Globe. Those surpassing all others in strength, length and beauty of staple are the Sea Island cottons grown in the soft maritime climate of the low-lying islands off the South Carolina and Georgia coast, where frost is scarcely known.

The Uplands cottons are similar in yield in all of the Atlantic and Gulf cotton rearing states, though the fineness of the yield is considerably affected by the care and intelligence of the planters.

So early as 1775 a stock company was formed in Philadelphia for the purpose of spinning cotton yarns by machinery, and many authorities cite this as the first attempt at cotton manufacture in the United States, though the first cotton mill operated upon the factory

system was at Beverly, Mass., in 1787. This was a stock company whose investment amounted to £4,000.



Sea Island or Long Staple Black Seeded Cotton, Coast of Georgia.

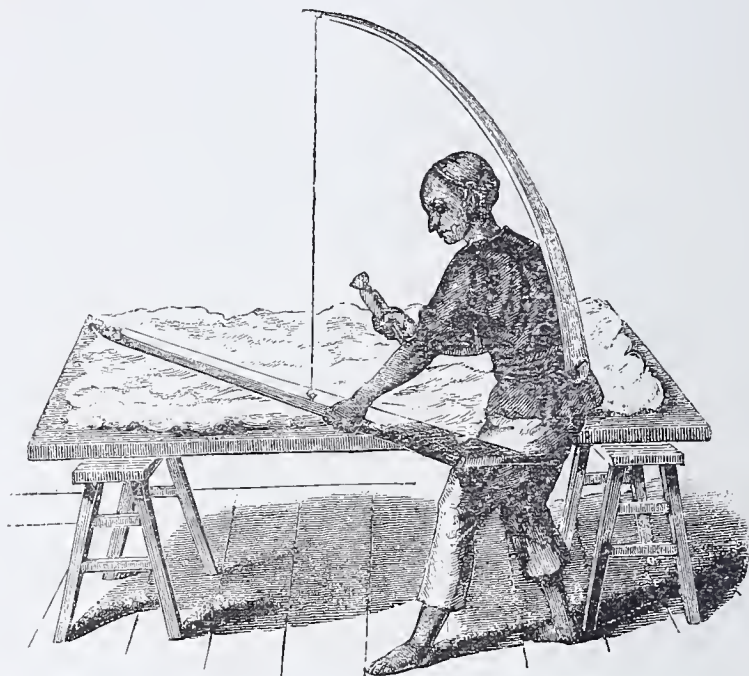
Samuel Slater, an Englishman who emigrated to this country in 1789, settling at Pawtucket, R. I., constructed a series of Arkwright machines and there in 1794, he made the first cotton thread. Before 1800, many of Slater's models and patterns were used by others and factories were established at Philadelphia, New Haven, Norwich, New York and Boston. These factories were all employed in carding, roving and spinning by machinery, but the total quantity of cotton consumed by them in 1800 aggregated but five hundred bales.

Interest in cotton culture and in other products was stimulated about 1789, by the Philadelphia County Society for the Encouragement of Agriculture and Domestic Manufactures.

Protection to "infant" manufactures was already a potent question among thinking men, and in March, 1789, a meeting of manufacturers and mechanics of Philadelphia, the Northern Liberties and Southwark, was held to take into consideration the propriety of petitioning Congress to lay such duties on products imported into Pennsylvania, as would give a decided preference to our mechanics.

An interesting sale by the manufacturing committee of the Pennsylvania Society took place early in 1789, and comprised printed cot-

tons, corduroys, Federal rib, jeans, flax and tow linens. Cotton calicoes were asserting themselves also at this time, as evidenced by the fact that John Hewson was made Calico Printer to the Society and the Commonwealth of Pennsylvania became a subscriber for one hundred shares of the stock of the company.



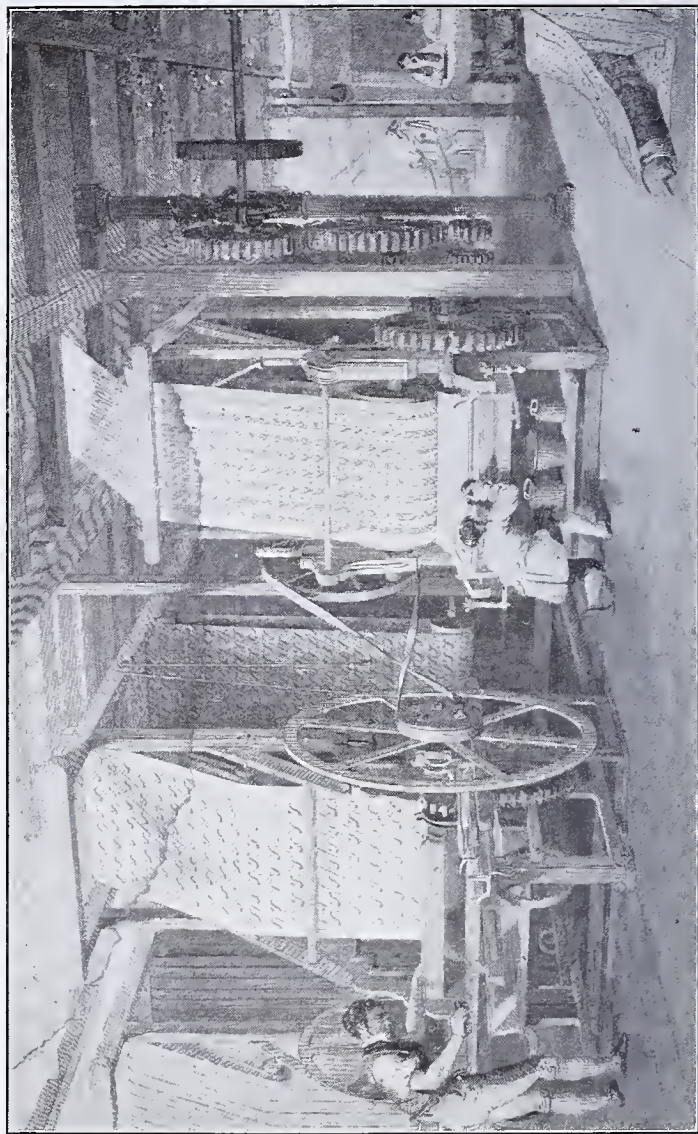
Bowing of Cotton as Practiced in India and China.

Following these events, the years 1793 and 1794 were marked by an effort at increased manufactures. Arkwright spinning frames were introduced and the weaving and beating of cotton sail duck imparted variety to the cotton output of Philadelphia.

In 1811, there appears in the summary of Philadelphia manufactures, one hundred and sixty-five stocking looms in different factories; eight print works, four print cutting establishments and also a number of concerns engaged in the building of cotton and woolen spinning machinery.

Glancing again, back of the events of 1793 and 1794, we find:

A set of complete brass models of Arkwright's invention was built and packed in England under the orders of Mr. Tench Coxe, of Philadelphia, so early as 1786, but for some reason the shipment was seized and its exportation from England defeated. The equipment and resources of the English cotton mills had about this time been greatly enhanced by the invention in 1774 of the power loom by Cartwright; of the mule jenny in 1775, by Crompton (which soon superseded the machine of Hargreaves) and by several improvements by Arkwright and others in carding, drawing and roving, and above all by the



Calico Printing by copper cylinders. Successfully done about the year
1785, at Mosney, near Preston, England.

adaptation in 1783 of the steam engine of Watt to the spinning and carding of cotton at Manchester. In 1783 also we find that English and East India goods were stifling the puny efforts to make cottons in Philadelphia and elsewhere. As a result, in Philadelphia and in New England, the need of stimulating our domestic industries and of inventing better machinery was found a vital necessity. Even so early as this a spinning jenny had been several years in use in Philadelphia and Mr. Wetherill had conducted through the war a private manufacture of cotton and woolen goods. In April 1782, he advertised for sale from his factory in South alley, Philadelphia, "Manufactures staple for all seasons, viz: Jeans, Fustians, Everlastings, Coatings, etc.," and the records strongly indicate that the Wetherill mill was the first to produce these fabrics in the United States. At this time the expense of weaving cotton cloth in Philadelphia was estimated as follows:

"One machine for carding cotton; cost about £50. One man will work the machine and card about twenty pounds of cotton per day."

"One spinning machine, commonly called a jenny, with forty spindles (which is the proper number) will cost about £13. One man or woman will work the machine and will spin from four to six pounds of a suitable degree of fineness for good jeans, fustians, etc. * * * A woman will rope on a good wheel about four pounds per day, for which she receives five cents per pound. One pound of cotton yarn will fill six yards of very good jeans; it usually fills more, but then the goods are proportionately lighter." * * *

The following is an estimate of the expense of fifty yards of jeans:

"Eighteen dozen flax yarn will make the chain for fifty yards of jeans at,	£1	7s	0d
Eight and one-third lbs. of cotton yarn will fill the same at 5s per lb.,	2	1s	8d
Weaving fifty yards at 8d per yard,	1	13s	4d
Dyeing fifty yards at 3d per yard,		12s	6d
	<hr/>		
	£5	14s	6d

The above estimate is calculated for fifty yards of very good jeans, such as will sell for 3s per yard, which is, £7 10s 0d

Profit,	£1	15s	6d"
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"N. B.—The price is supposed to be a retail one. The calculation of expenses is rather high than otherwise."—American Museum, Vol. 5, page 225.

The arrival of the now famous Samuel Slater, in Rhode Island, and the subsequent erection at Pawtucket of the first successful water mill for cotton in the United States (1793) caused events in cotton manufacture to move rapidly and proved a stimulus to Philadelphia as it did to other points. The organization in 1787, of the Pennsylvania Society for the Encouragement of the Manufactures and Useful Arts, has been previously noted. At this time an effort to obtain the Arkwright machinery had been defeated, but Wetherill's success in making ordinary cotton stuffs was an augury of what energy and brains could accomplish. On the 9th of August, 1787, Mr. Tench Coxe delivered an address before the Society in the University of Pennsylvania. This was of so informing and luminous a character that its publication was commanded. Mr. Coxe was very broad in his views and both he and the Society urged the cultivation of cotton in the Southern States and the adoption of labor-saving machinery as fast as it could be procured.

At this time the Board of Managers of the Society offered a gold medal of the value of £20 for the most useful engine or machine to be moved by power, fire or otherwise, by which the ordinary labor of hands in manufacturing cotton, wool, flax or hemp, should be better saved than by any then in use in the State; also for raising and cleaning the greatest quantity of hemp, flax or cotton; for the best specimen or patterns of printed linen or cotton goods stained within this State.

The premium for calico and linen printing probably led to the first works of the kind in the United States, the same being erected by John Hewson, a Revolutionary soldier, who also, in March, 1789, received a loan of £200 from the State by an act of the Legislature to enable him to enlarge and carry on the business of calico printing and bleaching within this State.

John Hewson, it is said, was invited to the United States from England by Benjamin Franklin, and such was his love for the Colonies that he enlisted and was taken prisoner by the British at the Battle of Monmouth. Having escaped, his captors offered fifty guineas for his recapture, dead or alive. His print works were near Richmond, and these were continued by his son of the same name, who died some forty years ago at the age of ninety-three years. General Washington, it is said, was accustomed to point with patriotic pride to domestic fabrics upon the person of Mrs. Washington, woven in the Hewson mills. John Hewson, the elder, was elected in October, 1788, to print for the Society and Robert Taylor was his competitor.



View of an English Mill Interior, Showing Power Looms for Cotton Weaving.

Hand and Power Weaving.

The art of weaving cloth is so ancient in origin as to defy antiquarians in their efforts to trace it to its generic source. Poetic reference is made in the Book of Job to the "weaver's shuttle" and its resemblance to the swift passage of human life.

Pliny informs us that the Egyptians put a shuttle into the hands of Isis to signify that she was the inventress of weaving, and it is clear from the statements of the most ancient of writers, that Assyria, Egypt, Persia and India were acquainted with the weaving art. Semiramis, Queen of Assyria has been accorded the honor of being perhaps the first person to weave in her realm, but so many kings and queens became patrons of the weaving craft, that to pinnacle any particular monarch as the originator of cloth weaving, would prove apocryphal to say the least.



Hindoo Cotton Weaver at His Loom.

Certain it is that all oriental countries have demonstrated by the structural qualities of their hand-woven fabrics, both of the middle and succeeding ages, that excellent weaving was done back to the earliest ages of which records exist. No modern power loom has yet excelled the delicacy, beauty and tenacity of the textiles of eastern countries. Geographical discoveries show that the natives of India, China, Japan, Borneo and the subjacent countries, were all found to be possessed of the useful art of weaving, and, with modifications, to have carried it to a high degree of advancement. France and England became each at an early period the habitat of the

weaving industries and cloths, both for domestic and decorative purposes, were fabricated in these countries by hand.

Mural tablets and decorations, found of late years in the ruins of Egypt, and other countries, show that Job, in his reference to the "shuttle," was alluding to a species of industry which provided the ancients with textiles for various purposes.

Three drawings from pictures found on the walls of Thebes, show several weavers at work and illustrate three forms of the loom; or, more correctly speaking, a purely manual process, a rudimentary vertical loom, and a more advanced form of the latter loom. These drawings are fixed by the best authorities, to belong to a period 3,000 years B. C.

When the American continent was discovered by white men, it was found that various tribes of the natives were expert in manual weaving; also that it was a well known art among the ancient races of Mexico, people who were unknown, even by tradition to those whom Europeans found occupying the country, and whose existence is only attested by the wonderful remains they have left behind them.

Capt. Cook and his successors, in their explorations on the Pacific Islands, found the natives of the various groups of islands that they discovered, quite adepts to the production of simple woven fabrics from the fibrous materials indigenous to their respective countries. And thus it is all around the globe—wherever explorers have gone, they have found amongst every race and nation, the useful art of weaving existant, either in the primitive, middle or advanced stage of growth.

Fortunately for mankind in its primitive state, no great ingenuity was needful in the fabrication of cloth. Cloth, itself, was simply an outgrowth of man's necessities. Nature did nothing for him, and as consciousness of his being dawned upon him, a covering for his skin became one of the first essentials to his comfort. In respect of a natural covering sufficient to shield him from the cold, man is less fortunate than wild beasts, and the skins of beasts were the first articles which he diverted to clothing purposes. Even now, in Arctic regions, skins prove an infallible friend to natives of these regions.

What is known to moderns as the "hand loom" differs considerably from the crude affairs which the ancients put together for the manufacture of cloths. This is especially true of the hand looms of France, England and America, thousands of which are still being propelled without the aid of steam. Nevertheless, the hand looms of all countries have an essential resemblance to the hand loom of the ancients. The art of weaving from its inception, has consisted of uniting the warp and weft into a homogeneous fabric, and certain simple and well defined rules had to be followed by builders of hand looms in whatever country.

Dr. Johnson, the eminent English lexicographer, thus defines weaving: "Weaving is the art by which threads of any substance are crossed and interlaced, so as to be arranged into a permanently expanded form and thus to be adapted for covering other bodies." Writers on weaving topics agree that this definition is difficult to improve upon. Richard Marsden, however, after indorsing Dr. Johnson's definition, in his highly informing work on cotton weaving, says: "Weaving is the art of arranging at right angles to each other, two or more series of threads of any suitable material, and binding them together by passing each thread under and over, and sometimes partially around one another in regular alternation, or, in such other order as may be needed to produce the required effect, by which arrangement they assume and retain an expanded form, rendering the fabric adaptable to many uses.

Mr. Marsden also contends that the origin of weaving can only be conjectured and that it is lost in the mists of past ages. He is clear, however, that indices of the weaving industry are found in all the countries that we have heretofore mentioned.

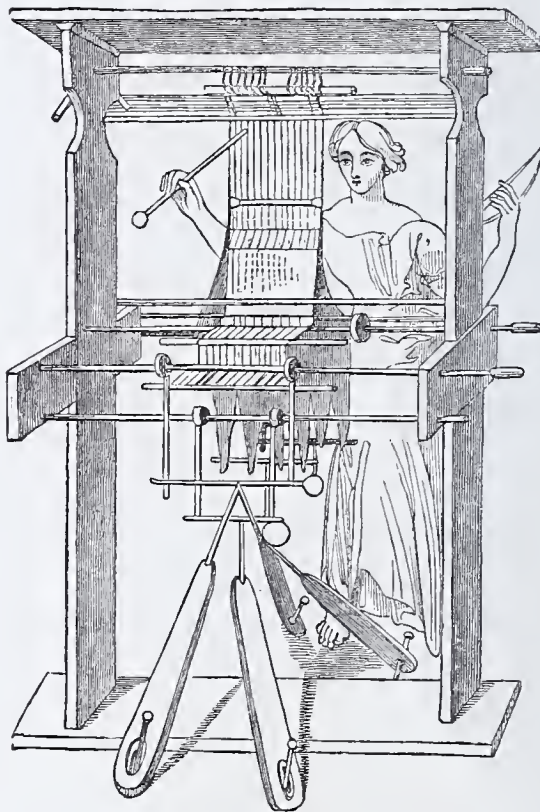
The hand loom of the Egyptian was a vertical affair and absolutely free from complication. The vertical principal in weaving is still in vogue in Turkey and other countries where rugs are woven with such wonderful accuracy, and while hand looms in general are fast receding and being replaced by the steam power loom (especially in England and the United States) millions of dollars worth of clothes are fortunately still fabricated by hand, and doubtless will be for a long period of time to come.

It is easily apparent from a study of the annals of weaving, that pretty much every nation on the globe has mastered, in some degree at least, the art of making cloth, and that therefore each nation has its peculiar type of hand loom. Within thirty years, there were several thousand hand looms on carpets and other cloths, at work in the city of Philadelphia. Excepting the marvellous jacquard machine, the Philadelphia carpet hand loom was as simple, we imagine, as looms built in the days of Job. Not a few of them still exist and ingrain art squares as wide as nine feet are still woven on hand looms to a limited extent.

Coming of the Power Loom.

Notwithstanding the achievements of the ancients in weaving, and the marvellous subtlety displayed in the variety, excellence and beauty of the output of the hand loom, it was evident a century ago that its mission had been performed in the more progressive countries. John Kaye's fly-shuttle loom, Robert Kaye's drop box arrangement—1760—together with Hargreaves and Arkwright's in-

ventions, were all expressive of the need of more speed at weaving and therefore better returns for the time and labor expended therein. It became evident in the times of these men that the hand loom alone could not minister to the needs of mankind in the matter of textiles. Clothing was but one item in man's needs. With the march of intelligence, his home suggested multitudinous uses for the fruit of the loom, and it was in response to such demands that French and English inventors began to exert themselves for an automatic power loom. The rapid adoption of Hargreaves' jenny in the homes of the spinners and weavers; the successful establishment of Arkwright's spinning mills at Cromford, Masson and other places, and of those of other people in various parts of the country in which the machinery of the great inventor was worked under a royalty, stimulated inventors and led gradually up to the unfolding of what could be done by power in weaving.



Loom of the Fourth or Fifth Century.

Mr. Marsden states it as a singular fact that the first attempt to make an automatic loom yet discovered, occurred half a century before Kaye invented his fly-shuttle. The projector of this loom was not a machinist, but one, M. de Gennes, an officer of the French Navy, who presented the machine embodying his conception to the

Royal Academy of Paris, in 1678, and a description, with an illustration, was published in No. XXXII of the "Journal des Sçavans" in that city in the same year. This machine was designed for making linen cloth without the aid of a workman and may be learned further of in "Abridgements of Specifications for Weaving," Part I, where it is also illustrated. This germ of the power loom, however, perished, leaving no influence behind.

The next attempt at a power loom on record, was also of French origin, and is credited to one Vaucanson, in 1745. According to Marsden, his loom contained the rudiments of Jacquard's invention, and also of the friction roller taking-up motion, still universally in use. Both Vaucanson and De Genmes' inventions had the shuttle motion consisting of levers having sockets at their extremities which passed the shuttle alternately from one to the other through the open shed of the warp. Both inventors were clearly attempting to imitate the action of the earliest weavers and the functions of their hands in passing the shuttle through the shed of the warp. But later, weavers threw their shuttles from hand to hand; these levers, if the expression may be permitted, handed the shuttle alternately from one to the other. It will be obvious that the best speed that could possibly be obtained would be less than that of the ordinary weaver, even of that time. A loom on this plan by a Swiss machinist, was shown at the Paris Exposition of 1878. It was deemed, however, little more than a mechanical curiosity. Kaye's plan of throwing the shuttle had been invented twelve years, but Vaucanson had evidently not learned of it; otherwise, as Mr. Alfred Barlow, in his early history of weaving remarks, "he might have adopted it and had he done so, the power loom might have made its way half a century earlier than it did. Vaucanson's invention came to naught, as did De Genmes'.

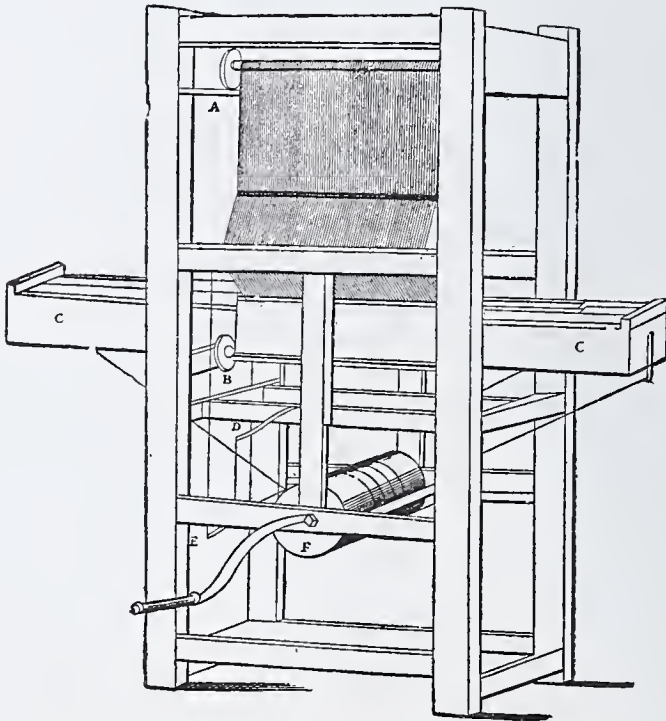
The pressing necessity of increasing the productive capacity of the weaver, or rather the necessity having become urgent through Kaye's, Hargreaves' and Arkwright's inventions, conditions became revolutionized, and yarns from being very scarce became relatively abundant. It appears that Robert and Thomas Barber, of Bilborough, Nottingham (described as gentlemen) took out a patent (No. 1,083) in 1774, for machinery for preparing, spinning and weaving fibrous substances, etc. "This loom was wonderfully near being a solution of the problem conceived, and had its inventors possessed the persistency of purpose of Dr. Cartwright, there can be little doubt that their success would have been assured, as their device was a much better and more practicable one than the first effort of the clergyman's." Marsden.

In 1784 it is related that a party of gentlemen met at the dinner table of a hotel at Matlock Bath, quite near to Cromford, the site of

Sir Richard Arkwright's mills. During the sitting they discussed the prospects of the then infant cotton trade, debating as has often been done since, the consequences that might ensue from an over-production of yarns; a climax that was likely to ensue from the then existing numbers and prospective increase of the newly invented spinning machines. It was during this discussion that the idea was expressed that if England made machines to spin yarn, she must make machines to weave it into cloth. This thought and expression is attributed to the Rev. Dr. Cartwright, a clergyman of the Church of England, and one of the persons composing the dinner party.

Dr. Cartwright's auditors declared the idea to be impracticable, owing to the number and complexity of the movements of a weaver when at work. This did not discourage him, however, and in proof of the position he had taken up, he adduced in illustration and instance the automaton chess player, which was about that time attracting much attention in London. Whatever the effect of his argument was upon his hearers, the dinner party broke up with Cartwright convinced of his ability to invent a power loom and he proceeded forthwith to put his ideas into effect. As he, himself afterwards confessed, he knew nothing whatever of weaving, never even having seen a weaver at work. Of the stages of his progress, no record is left, but after a few months' struggle, he had brought his thoughts so near to realization that he took out a patent April, 1785.

The illustration herewith given of the Cartwright loom is from



Dr. Cartwright's First Power Loom—1785.

the Patent Specifications wherein it is thus described by the patentee:

"It is worked by a mechanical force. The warp, instead of lying horizontally as in the common looms, is in this machine (which may be made to hold any number of webs at pleasure) placed perpendicularly. The shuttle, instead of being thrown by hand, is thrown either by a spring, the vibration of a pendulum, the stroke of a hammer, or by the application of one of the mechanical powers, according to the nature of the work and the distance the shuttle is required to be thrown, and lastly, the web winds up gradually as it is woven.

A is the warp beam; B the cloth beam; C C the boxes containing the springs that throw the shuttles; D is a lever, having a corresponding one on the opposite side for elevating the reed or comb; E a lever, having a corresponding one on the opposite side for reversing the threads; F the cylinder which gives motion to the levers. N. B.—The warp is kept to a due degree of tension by the counteraction of either a weight or spring. The web is made to wind by a like power, though in an inferior degree, and is prevented, as the stroke of the reed or comb brings it down, from unwinding by a ratch-wheel or click."

It is evident even to those slightly versed in the details of weaving, that Cartwright's vertical loom was simply a germ of the great inventions which were soon to follow. His second loom, perfected in 1786, embodied to a much greater degree the vital principles which pertain to modern weaving mechanism, but it was left to others to grasp more fully the requisites of a perfect power machine, and the English industry was by no means lacking in men of genius capable of the task. One inventor after another expanded the Cartwright principle and each decade up to the year 1830 saw some progress made both in cotton and woolen weaving.

It was in 1830, that Richard Roberts offered to cotton weavers his marvellous machine, capable of 100 to 180 pecks or shoots in a minute. In May, 1833, an American invention of a self-acting temple attracted much attention, but its principle on the whole, proved defective. In 1834, the invention of Luke and John Smith found approval with the trade and has held its own to the present time. The gain by their machine was an improved picking arrangement. In May, 1834, two notable inventions appeared at Blackburn, and on July 12, 1834, John Ramsbottom and Richard Holt, Todmorden, were granted a specification for their simple and beautiful automatic weft-stop motion. In October, 1835, James Bullock, of Blackburn, sought the patent office with the invention of the double horizontal loom having two beams, two slays and two sets of healds with the other necessary appenditures. Included in this

patent was an improved weft stopping motion and taking-up and letting-off arrangement.

In 1836, Andrew Parkison patented an improved stretcher or temple, which has not even yet been altogether discarded.

In 1841, there was submitted two important improvements embodied in one specification. These were: First, the trough and roller temple, that in templing marked the introduction of a new principle, which, with improvements in details has held its own ever since. The second of these was a great simplification and improvement in detail of the fork and grid weft stop motion, first introduced by Ramsbottom and Holt, as previously stated. The patent containing these important improvements was granted to Wm. Kenworthy and James Bullock, of Brookhouse, Blackburn—two names as well known as any in the roll of inventors in connection with the cotton loom. It will thus be seen that fifty-five years had elapsed from the date of Dr. Cartwright's invention to the time when a loom capable of perfect execution became available to commerce.

Before the various improvements which we have traced became operative, it required the most unremitting attention of the weaver to prevent the warp being drawn down without its filling of weft, by which it was frayed and seriously injured. The cloth, too, was frequently damaged by "galls" and "cranks" or long and short spaces without weft. These improvements, in short, rendered the loom an almost perfect automaton.

These citations by no means cover all the great discoveries which made England the mistress of the world in cotton weaving. Inventors have been sleepless in their efforts for higher speed and absolute faultlessness of the woven product.

Both cotton and woolen weaving have been aided within fifty years past very greatly by the genius and energy of American inventors, and the name of Bigelow as related to pile carpets, Murkland to ingrain carpets and Crompton and Knowles families to cotton and wool weaving of all descriptions, including carpets, as well as that of Furbush, in Philadelphia, are each and all imperishably connected with the success of the textile guilds.

Philadelphia in 1810.

From a summary of manufacturing interests for the city and county of Philadelphia, published in 1811, we find that the city and county contained at this period, a greater number and variety of manufacturers than any city in the Union. The population of Philadelphia in that year was 111,210, that of New York being at the same time, 96,372.

Among other items, we find that the county of Philadelphia had

273 looms; spinning wheels 3,648; rope walks 15; looms with fly shuttles 186; spindles in factories 4,723; stocking looms in factories 105; print works 8.

In the year 1812, the United States patent office showed more than a dozen inventions for spinning machinery, among which was a portable or family machine of simple construction, patented April 27, by Rev. Burges Allison. It drove ten to fifteen spindles and occupied a very little more space than the common spinning wheel. It spun wool to any fineness preferred and could be used for cotton which was previously carded into rolls.

In February, 1813, there was incorporated the Boston Manufacturing Company, and the completion is also chronicled late in the year, of a cotton manufactory at Waltham, Mass. Into this mill were installed the first power looms to be used in cotton weaving and with spindles came all the other accessories for converting raw cotton into finished cloths. This enterprise was added by Francis C. Lowell, Esq., who died in 1817, at the age of forty-two.

The Lowell loom was quite different from English power looms for cotton. The principal movement was by the cam revolving by an eccentric motion which has since given place to a crank.

Other minor improvements have been since introduced, mostly intended to give it increased speed. The patent dressing machine of Horrocks, of England, of which Mr. Lowell had procured a drawing, was added to the Lowell loom and its efficiency thereby more than doubled. Other improvements of a vital character were quickly perfected and the plant at Waltham became widely talked and written of. The first product of the Waltham Cotton Works was heavy unbleached sheetings of No. 14 yarn, thirty-seven inches wide, forty-four picks to the inch, and in weight something less than three yards to the pound. This class of cloth was found highly adapted to the needs of the southern planter and its use became general throughout the middle Southern States.

In 1828 decisive proof was given of the superiority of American cotton machinery. The agent of a cotton factory about then to be established in Prussia, after visiting England, gave the preference to American machines, and ordered at one factory \$100,000 worth.

In this year also, great excitement existed in South Carolina, growing out of the improvement in the texture of Sea Island cotton. This grade of cotton had sold in 1804, at twenty-five cents a pound more than any other kind. Between 1804 and 1828 the leading authority was Kerisay Burden, who had used his botanical knowledge in every possible way to improve the staple. In 1826, he sold his first crop of sixty bags, for \$1.10 per pound. Others were successful in rearing cotton of great fineness, but it was found by experts, that the high quality had been secured at the expense of quantity; the

yield of improved Sea Island being far too small for the world's needs. Being extremely high in price also, its use was gradually abandoned in favor of the more staple cotton of the uplands.

In 1831 there came a great decline in the price of raw cotton and heavy failures occurred in Georgia. Cotton which had sold at nine and one-half to eleven and one-half cents per pound, in the autumn previous, became worth only five to seven and one-half cents.

On the 30th of September, a great free trade convention met in Philadelphia, twenty delegates from fifteen states being present. This body protested against the protective features of the tariff, and following this convention, 500 delegates from the New England and Middle States, Virginia and Ohio, met in New York, and C. J. Ingersoll, of Philadelphia, took an active part in voicing the sentiment of the convention in favor of protection for the cotton and other industries.

The invention of Oliver Evans, before referred to in this article, was undoubtedly very important. The outcome of his labor was a machine by which he could work the wire into card teeth at the rate of nearly three thousand per minute by the simple motion of turning the winch or wrench by hand; also a machine for punching the holes in the leather for the teeth, by which, he could prick by the motion of his hand, 150 pairs of cards per day. He also planned a wire mill with machinery to make the wire into card teeth as fast as drawn. Mr. Evans often claimed this to be the greatest production of his mind.

The first regular manufactory of cotton machinery, in Pennsylvania, was established at Holmesburg (now within the limits of Philadelphia), in the year 1810, by Alfred Jenks, who had been a pupil and co-laborer with Samuel Slater. Mr. Jenks brought with him, from New England to Philadelphia, drawings of all the cotton machines that had been perfected and put to work in New England. His coming was very opportune for Pennsylvania, for he possessed unusual shrewdness and a degree of energy which has left an indelible imprint on the textile industry. Mr. Jenks supplied the first cotton mill started adjacent to Philadelphia with the requisite machinery and subsequently equipped the Keating mills at Manayunk, and in 1817, supplied Joseph Ripka with a number of looms for weaving cottonades. Stimulated by the war demand of 1812, Mr. Jenks expanded his business and about 1820, founded the machine works at Bridesburg which are still in existence. When the demand first arose for woolen machinery in Pennsylvania, Mr. Jenks at once commenced its manufacture; it being his honor to equip the first mill erected in the State by Bethuel Moore, at Conshohocken.

In 1830, Mr. Jenks invented a much needed power loom for weaving cotton checks. This loom was introduced into the Kempton mill at

Manayunk where its success and labor saving qualities caused great excitement; a mob being raised for the avowed purpose of destroying the machine. This was prevented by an armed force and when the excitement calmed down, Jenks proceeded to erect larger buildings and install labor-saving devices.

The Jenks plant at Bridesburg became the precursor of numerous others, so that in 1850, Philadelphia was known in all sections for its excellent mechanism, both for cotton and woolen fabrics.

The early chronology of the cotton industry is exceedingly vague so far as Pennsylvania is concerned. In 1824 a list existed, showing thirty-three cotton and woolen factories, in the city and vicinity, working by water or steam power, and twenty of these had no less than 28,750 spindles in operation and the number increasing. This, however, did not by any means disclose the productive capacity of Philadelphia in cotton fabrics; hand looms were working away in various sheds and homesteads, which could not be accorded the dignity of being styled "factories," and the installation of power machinery in New England attracted far more attention than did the hand looms of Philadelphia although our output was large.

In 1850, Philadelphia was conceded to be the center of a greater number of textile factories than any other city in the world. "No other city," says Mr. Freedly, writing in 1850, "is the center of 260 cotton and woolen factories and containing besides, hand looms in force, making a production equal to seventy additional factories of average size."

Included in the cotton output of Philadelphia and variously designated as, "Philadelphia goods," we find the city turning out in 1850 bed tickings of great excellence. The New England commissioner to the American World's Fair wrote of these tickings, that they were thirty-six inches wide, eleven reed, No. 30 warp and No. 35 filling or weft, with 140 picks to the inch. "It is scarcely possible," he said, "to conceive a firmer or better made article. The variety of tickings made in Philadelphia and vicinity are far more numerous than elsewhere and the prices range from seven to twenty-four cents, the latter quality being for feather beds and pillows."

At this period, also (1850), Philadelphia was making apron and furniture checks worth from seven and one-half to seventeen cents, miners' shirtings worth from twelve to twenty cents, also gingham in all qualities worth from eight and one-half to sixteen cents. The city's gingham product stood high in the dry goods trade and was claimed as preferable to the Scotch; being free from the dressing which added so much to the apparent weight of the latter.

In the line of pantaloon stuffs, cottonades, etc., the variety was large; one mill turning out three and one-half million yards per annum. These fabrics were from twenty-five to twenty-nine inches

wide, and ranged in price from eight and one-half to twenty-five cents.

Brown sheetings, two yards wide, made of yarn No. 14, count 50x56, was then made near Philadelphia as was also heavy blue mariners' shirtings, familiar later in the west as "hickory shirtings," and worth from eight to ten and one-half cents. Among other staple fabrics were denims, goods for the Southern States known as negro plaids, chambrays or crankies, nankeens twenty-eight inches wide, worth ten cents for plain and thirteen cents for heavy twilled; ducks, osnaburgs, calicoes and printed cloths were also included in the staple products of the Quaker City. Cotton yarns were produced to a limited extent, but as before stated, the chief supply of these came from points eastward.

In all the above cloths the output of Pennsylvania is immense in aggregate, the technical excellence and mastery of detail apparent in the product being conceded by dealers and consumers universally.

Not much of interest is of record between 1811 and 1815. In this year a treaty of peace and amity with Great Britain was consummated, following which immense cargoes of foreign manufactures were imported, greatly to the alarm and actual harm of the newly created branches of domestic industry. Congress was petitioned early in 1815, by Thomas Gilkin, and other mill men of Philadelphia against the introduction of goods subject to ad valorem duties, and asking, as is constantly done in this day, a revision of the tariff laws and the substitution, in many cases, of specific for ad valorem duties.

To show that the Pennsylvania mills were not frightened without cause, we may state that the importations of foreign stuffs for the first three-fourths of the year 1815, amounted to upwards of \$83,000,000, and for the fiscal year next ensuing, the aggregate was \$150,250,000. The influx of so great a quantity of foreign-made caused great confusion and many factories were closed.

The demand for the raw cotton abroad increased and the price of staple cottons went from thirteen cents per pound in 1814 to twenty-seven cents per pound in 1815. The introduction of the power loom here is said to have saved the manufacture of cotton from total destruction at the period following the Treaty of Amity with Great Britain.

Cotton manufacture, as regards the number of persons employed in it and in the annual yardage must have exceeded that of wool at this time. The number of cotton operatives accorded to the city and neighborhood of Philadelphia in 1815 was 2,325, and those on woolen 1,226.

For some four years after the Treaty, Philadelphia cotton mills had a precarious existence. Importations were unchecked and the vitiated currency gave great annoyance to merchants and traders



VIEW No. 1.—Main Weave Room of the largest Cotton Goods Plant in Pennsylvania.

generally. A general paralysis in fact fell upon all branches of industry and the distress became more general and severe than had been known before. In October, 1819, a committee of Philadelphia citizens reported that in thirty out of sixty branches of manufacture, there had been a reduction from the average of 1814 and 1816 in the number of persons employed, from 9,425 to 2,137; in their weekly wages from \$58,340 to \$12,822 and in their annual earnings from \$3,033,799 to \$666,744.

In the manufacture of cottons, the hands were reduced from 2,325 in 1816, to 149 in Philadelphia and neighborhood.

In 1821, the outlook for cotton manufacture must have improved, for over 4,000 looms were then put in operation, chiefly for weaving cotton goods.

The weaving of cloths for calicoes and the subsequent printing thereon, began its development and sold as low as the poorer qualities of British prints.

In April, 1824, the Franklin Institute, which has always stood in close relation to the textile industries, began its career. Lectures and demonstrations became a part of its routine and scientific inquiry was greatly stimulated.

At this date Philadelphia was strong in cotton manufacture. Thirty mills, averaging fourteen hundred spindles each are reported as in operation and some 5,000 looms gave employment to 3,000 persons. This was quite a staunch industry for that period considering the strength and aggressiveness of the British industry and their decided priority in manufacture.

An exhibition of domestic manufactures held in the rotunda of the Capitol at Washington, in 1825, attracted much attention and demonstrated very clearly our progress in cottons and other textiles.

In 1827, according to accounts, there were in Philadelphia and its vicinity, one hundred and four warping mills at work, employing 4,500 weavers, over 200 dyers, 3,000 spoolers and 2,000 bobbin winders.

The years between 1832 and 1839 were prolific in tariff agitation and conventions for and against were numerous, as were memorials to Congress. Matthew Carey, of Philadelphia, who had given much study to the cotton industry, died September 17, 1839, in the eightieth year of his age, and by his decease the system of protection to home industry lost one of its ablest advocates. Among the last acts of his political life was the effort to allay the rancor of the cotton planters of the South. The tariff of 1828, they had denominated as a "bill of abominations." Mr. Carey wrote a pamphlet entitled "Common Sense" and addressed it to the people of the South, together with his circular to organize a society of political economists for the diffusion of what he considered sound views of political economy.

In 1834, the manufactories of Manayunk embraced seven cotton

mills with upward of 22,000 spindles and 1,000 hands. In 1840, the official returns show seventeen cotton factories with 17,922 spindles, and fourteen printing and dyeing establishments.

Cotton Factories of the United States in 1854.

	Mills.	Capital invested.	Value of production.
Massachusetts,	213	\$28,455,630	\$19,712,461
Rhode Island,	158	6,675,000	6,447,120
Connecticut,	128	4,219,100	4,257,522
Pennsylvania,	208	4,238,925	5,322,062

The More Modern Period.

In 1860, we find one hundred and six establishments engaged in cotton and woolen manufacture, having a capital of \$5,038,040 and employing 3,564 hands. The value of raw materials consumed in these mills was \$3,226,869 and the value of the finished product was \$6,777,349.

The census returns for 1860 and 1870 were based upon the defective machinery employed in the census of 1856 and hence there is little that is clear and trustworthy from official sources to be stated concerning cottons either for 1860 or 1870.

In 1876 there was great activity in cotton fabrication and many of the mills increased their machinery. The value of goods for domestic consumption, exclusive of cotton prints amounted in 1876 in Philadelphia to \$12,000,000.

Cotton Manufacture in 1880.

According to the United States Census of 1880, Pennsylvania ranked seventh in the magnitude of its cotton industries as compared with other states. At that period the distribution of power looms on cotton weaving by states was as follows:

	Looms.
Massachusetts,	94,788
Maine,	15,978
Connecticut,	18,036
New Hampshire,	25,487
New York,	12,822
Rhode Island,	30,274
Pennsylvania,	10,541

The Philadelphia cotton industry, including woolen and mixed goods and print works, aggregated as follows:

Number of establishments,	257
Capital,	\$21,190,905
Greatest number of hands employed,	21,493
Wages paid,	\$7,750,092
Value of material,	\$27,982,501
Value of product,	\$39,465,390

The above figures have no relation to the carpet industry, which formed then as now, so large a part of both the woolen and cotton aggregates of the city; nor are hosiery mills included.

As indicating the general growth of the industry, we present the statistics compiled by Lorin Blodgett, Esq., for the year 1882. Mr. Blodgett was a former official of the Treasury Department and his tabulations have long been accepted as authentic.

	Number of estab- lish- ments.	Hands em- ployed.	Value of product.
Cotton yarn goods,	81	9,523	\$13,100,333
Cotton yarn goods finishers,	7	237	472,500
Cotton coverlets,	18	484	697,800
Cotton towels (separate establishments),	4	81	113,400
Cotton laps and wadding,	3	9	9,500
Cotton thread, cord and twine,	3	22	37,800
Cotton webbing, binding, etc.,	4	414	522,000
Cotton yarns,	15	783	1,245,000
Cotton waste for packing,	5	70	87,500

Statistical Showing for Fifty Years.

To show the relative position of the cotton industry of Pennsylvania as compared with that of the New England States in particular, we append below the last official tables covering the six decades, 1840 to 1890. As will be seen the table includes aggregates for the United States and also for the New England States, to which we have appended in detail the statistics of Pennsylvania, Maine, New Hampshire, Massachusetts, Rhode Island and Connecticut.

Cotton Industry 1840-1890.

		States and Territories.	Number of estab- lishments.	Capital. (a.)	Machinery.		Value of Products.
					Spindles.	Looms.	
United States:							
1	1840.		1,240	\$51,102,359	2,284,631	.....	\$16,350,453
2	1850.		1,664	74,500,931	.....	.....	61,869,184
3	1860.		1,091	98,585,269	5,235,727	126,313	115,681,774
4	1870.		956	140,706,291	7,132,415	157,310	177,489,739
5	1880.		756	208,280,346	10,633,435	225,759	192,090,110
6	1890.		905	354,020,843	14,188,103	324,866	267,981,724
New England States:							
7	1840.		674	34,931,339	1,597,394	.....	31,611,880
8	1850.		564	53,832,430	.....	.....	42,040,178
9	1860.		570	69,260,279	3,858,962	93,344	79,359,909
10	1870.		508	100,103,770	5,498,308	114,982	124,959,053
11	1880.		429	156,754,690	8,632,087	184,701	143,363,030
12	1890.		402	243,153,249	10,836,155	250,116	181,112,453
Maine:							
13	1840.		6	1,398,000	29,736	.....	970,397
14	1850.		12	3,329,706	.....	.....	2,596,356
15	1860.		19	6,018,325	281,056	6,877	6,235,623
16	1870.		23	9,829,685	439,772	9,902	11,844,181
17	1880.		24	15,292,078	695,924	15,971	13,819,363
18	1890.		23	20,850,754	885,762	21,825	15,316,909
New Hampshire:							
19	1840.		58	5,523,200	195,173	.....	4,142,304
20	1850.		44	10,950,500	.....	.....	8,830,619
21	1860.		44	12,586,880	636,788	17,336	13,699,994
22	1870.		36	13,332,710	749,843	19,091	16,999,672
23	1880.		36	19,877,084	944,053	24,299	17,933,403
24	1890.		27	26,891,933	1,196,643	31,850	21,958,002
Vermont:							
25	1840.		7	118,100	7,254	.....	113,000
26	1850.		9	202,500	.....	.....	196,100
27	1860.		8	271,200	17,600	362	357,450
28	1870.		8	670,000	28,768	628	546,510
29	1880.		7	936,096	55,081	1,180	855,864
30	1890.		6	1,431,986	71,531	1,175	914,685

Massachusetts:

31	1840.	278	17,414,089	665,095	16,553,423	31
32	1850.	213	28,485,680	.....	19,712,461	32
33	1860.	217	33,704,674	1,673,498	38,004,255	33
34	1870.	191	44,714,375	2,619,541	55,343	34
35	1880.	175	72,291,601	4,236,084	72,289,518	35
36	1890.	187	128,838,837	5,824,518	100,202,882	36

Rhode Island:

37	1840.	209	7,326,000	518,817	7,116,792	37
38	1850.	158	6,675,000	.....	6,447,120	38
39	1860.	153	10,052,200	814,554	12,151,191	39
40	1870.	139	18,836,300	1,043,242	22,049,293	40
41	1880.	115	28,017,331	1,764,569	22,875,111	41
42	1890.	94	38,798,161	1,924,486	27,310,199	42

Connecticut:

43	1840.	116	3,152,000	181,319	2,715,964	43
44	1850.	128	4,213,100	.....	4,257,522	44
45	1860.	129	6,627,000	435,466	8,675	45
46	1870.	111	12,710,700	597,142	11,943	46
47	1880.	82	20,310,500	936,376	18,261	47
48	1890.	65	26,431,578	934,155	18,933	48

Pennsylvania:

1	1840.	106	3,325,100	146,494	5,013,007	1
2	1850.	208	4,528,925	.....	5,322,262	2
3	1860.	185	9,293,040	476,979	13,650,114	3
4	1870.	138	12,550,720	434,246	17,490,080	4
5	1880.	59	10,331,985	425,391	11,021,054	5
6	1890.	158	15,884,336	433,638	18,431,773	6

Hosiery plants of importance have recently been started in Pennsylvania at Reading, Columbia and Tremont. Quite a number are in process in Philadelphia and the signs are that within ten years there will be an increase of twenty-five to thirty-three per cent. in the number of these mills in Philadelphia.

The absence at prominent points in Pennsylvania of cotton mills, either for weaving or spinning, should not cause misapprehension as to the magnitude of the industry in the State. Such mills have largely focalized in and around Philadelphia and so favorable are the conditions at this great centre, that the industry will grow rather than diminish.

Within fifty years, efforts have been made to make cotton goods at Pittsburg and the Penn and the Anchor Mills, which were long since dismantled, are still well remembered by old residents.

As many as four cotton mills were put into operation around Pittsburg within the period named, but none exist there to-day, nor is it easy to learn just what their products consisted of. Cotton making did not pay there and hence the mills were dismantled and diverted to other purposes.

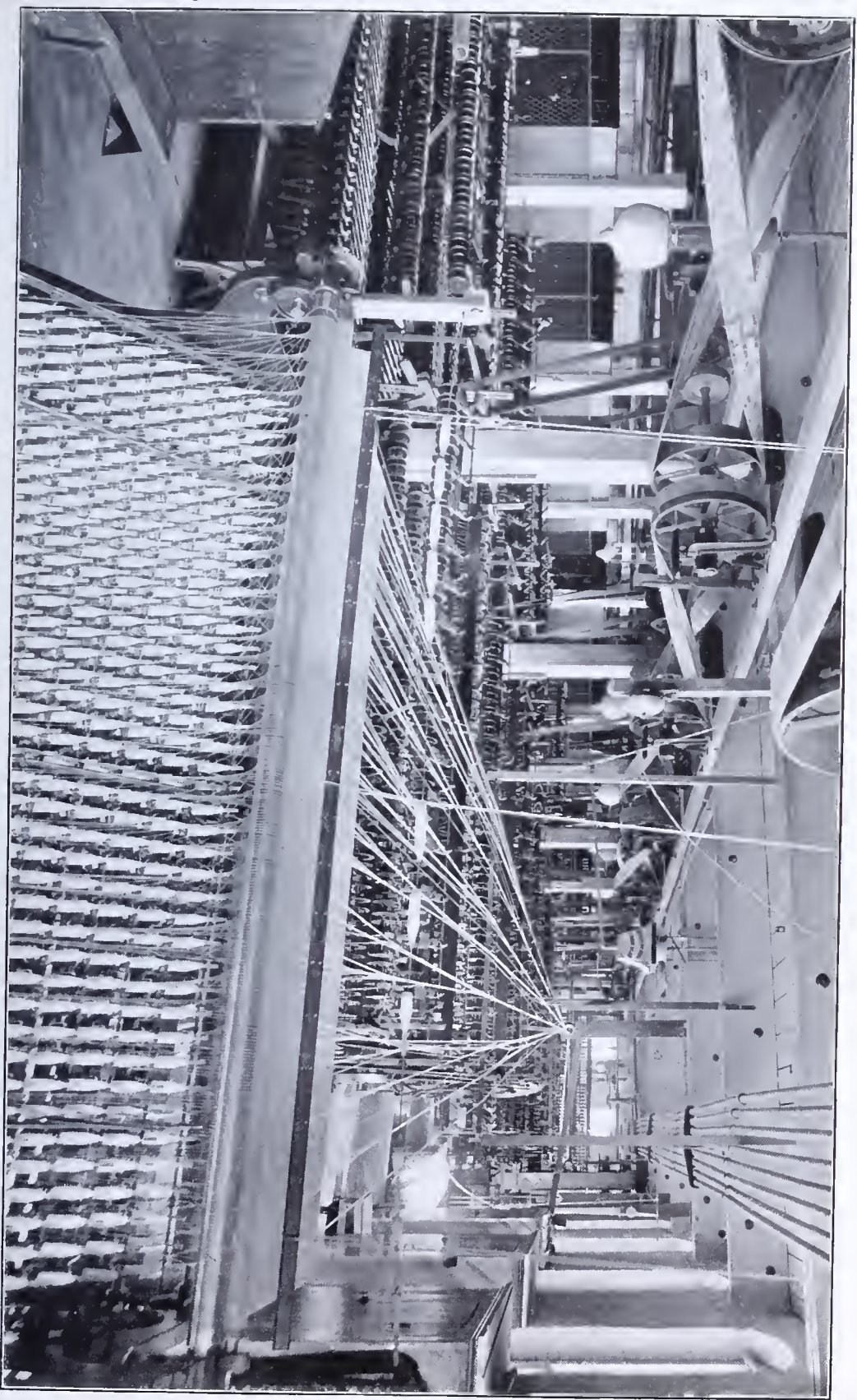
Hosiery and Knit Goods.

Probably no one of the textile industries of Pennsylvania is more sensitive to untoward conditions of trade than that of hosiery and knit goods. This class of industry was long since pre-empted by the toilers of Europe and up till within a very recent period American manufacturers have been quite unable to compete against imported hosiery, and this whether customs duties were heavy or light.

It is familiar to those well informed in textile matters that even so late as 1890, and especially during the years preceding and succeeding that year, American hosiery was fabricated and sold at but little profit to the producer. This was in no sense owing to an inferior output or to defective machines, for in no direction have American inventors been more visible than in the perfecting of machines for cotton and woolen knit goods.

About the period mentioned the American markets were overstocked with hosiery of European origin and very many Pennsylvania mills ceased running or at best kept only enough machinery active to escape an actual closing of their establishments. Without dwelling upon the vicissitudes of trade, we may say that at the present time the hosiery and knit goods industries of Pennsylvania, and notably those of Philadelphia, are in admirable condition, the plants, as a rule, operating on a profitable basis and with good wages to the help employed.

The ancient and historic suburb of Germantown became conspicuous for yarns adapted to the knit goods trade at a very early period.



VIEW No. 2.—Section of Winding Room in the Largest Cotton Goods Plant in Pennsylvania.

Mere than one mill in that quarter is able to trace its genesis back of the American Revolution, since which period the "Germantown yarns" have been famed in all parts of the country for their purity of material and for the accuracy with which they were spun.

At this writing there are at least one hundred and seventy-five plants within the limits of Philadelphia county engaged in the hosiery and knit goods manufacture, and of these, forty-nine are located in Old Germantown.

Owing to the consumption of both cotton and woolen yarns under the same roof, it is quite impossible to classify many of these hosiery and knitting mills either as cotton or woolen plants. They are both.

Hosiery and Knit Goods Outside of Philadelphia.

Other than the one hundred and seventy mills conducted within the limits of Philadelphia county, private statistics for 1899 show the existence of one hundred and ninety-one plants located in almost every county where facilities for manufacture and transportation exist. The output of these State industries is largely similar to that of the Philadelphia mills and includes cotton and woolen hose and hosiery for men and women, also knit underwear for both sexes. Of the one hundred and eighty-six mills mentioned fifty-eight are engaged in bleaching, dyeing or other processes incident to the industry. Geographically, the distribution of the knitting industry among the towns is approximately as follows: At Allentown there are eight knitting mills and two bleacheries. At Allegheny, the Western Penitentiary employs the maximum percentage allowed by law of inmates on cotton hosiery, seventy-eight hand and foot power machines being operated. At Bethlehem there are three concerns engaged on cotton seamless hose, half hose and mixed cut. One of these mills operates eighty knitting, twenty-five rib, twelve looping and five sewing machines; runs by steam power and does its own dyeing and finishing. The two others are slightly less extensive. At Bristol, cotton, woolen, silk and merino hosiery, seamless and cut; also underwear is produced on a large scale in a mill having 200 knitting machines on hosiery, twenty on underwear and fifty sewing machines, it being one of the largest mills in the eastern section of the State. At Hawley we find a plant capitalized at \$100,000, the product of which comprises sweaters, golf hose, cardigan jackets, infant's leggings and kindred articles. At Newville a mill capitalized at \$80,000, with an output of cotton and lisle seamless hosiery and underwear, with 194 knitting machines, twenty body frames, steam and water power and dyeing and finishing. Norristown shelters five well equipped knitting plants with machines running chiefly on cotton seamless hosiery and some underwear. Pottsville has seven

mills of quite a varied output and Reading has twenty, thus excelling all other towns outside of Philadelphia. Reading's output comprises cotton jersey, ribbed underwear, seamless and cut hosiery, both of cotton and wool and other stuffs of kindred fabrication. Schuylkill Haven seems a favorite point for hosiery manufacture, there being nine mills at the last reports, the yield of which is highly spoken of. Wilkes-Barre, Williamsport, York, West Chester, Tremont, Sunbury, Spartansburg, Plymouth, Phoenixville, Minersville, Mechanicsburg, Gettysburg, Lewisburg, Huntingdon, Danville, Downingtown and a number of other thriving towns are each the habitat of one or more knitting mills.

The Philadelphia Industry in 1890.

The strength of the Philadelphia hosiery and knit goods industry in the census of 1890 may be taken as strongly illustrative of the magnitude of the industry throughout the State. From tables gathered from 165 cities having a population of 20,000 and over, the status of the hosiery and knit goods trades in Philadelphia was as follows:

Number of establishments, 178.

Value of hired property, \$993,670.

Direct investment, \$7,830,196.

Miscellaneous expenses, \$654,926.

Average number of employes, 12,637.

Total wages, \$4,025,709.

Officers, firm members and clerks, 406.

Wages paid firm members and clerks, \$416,885.

Operatives, skilled and unskilled, 5,663.

Wages paid, \$1,831,079.

Piece workers, 6,568.

Wages paid, \$1,777,745.

Cost of materials used, \$7,710,256.

Value of products, receipts from custom work, \$14,932,981.

Fluctuation in Wages—Knit Goods.

As indicative of the increase or decrease of wages paid operatives in the manufacture of knit goods, we append herewith results ascertained from establishments only, for the years 1892 to 1898, inclusive. tained from 5 establishments only, for the years 1892 to 1898, inclusive:

Comparison of Aggregate Amount of Wages Paid by the Same 5 Knit Goods Establishments for the Years Ending 1892, 1893, 1894, 1895, 1896, 1897, 1898 and 1899, and Showing Increase or Decrease over the Preceding Year, and Increase 1899 over 1892.

KNIT GOODS, AGGREGATE OF WAGES PAID, SAME ESTABLISHMENTS.

1892,	\$286,648	.....	.....
1893,	255,438	—\$31,210	.....
1894,	205,732	—49,706	.....
1895,	288,841	+83,109	.....
1896,	228,053	—60,788	.....
1897,	247,615	+19,562	.....
1898,	247,184	—431	.....
1899,	288,434	+41,250	+\$1,786

The most famous and successful machines on hosiery and knit goods having been invented and perfected in Philadelphia, it can be safely asserted that the city's output in this respect excels in every particular. The most ingenious knitting machine of the present day was invented by a man now living in Philadelphia, and his devices have been adopted wherever the knit goods industry exists, whether here or in foreign lands. There are more active mills confined to the fabrication of hosiery and knit goods in Philadelphia than are to be found in all the New England States with the exception of Massachusetts.

In the matter of underwear, Philadelphia has not been so active but its product in this line is highly acceptable to the trade at large and to consumers. In hosiery, however, and in knit articles of similar kinds, there has been a steady advance in and a gradual uplifting of standards. The annual production both of the State and city will shortly be reported from the Twelfth Census, and this will be found of great magnitude, recent conditions and the Dingley tariff having been highly favorable to successful manufacture.

Location of Hosiery and Knit Goods Establishments in Pennsylvania.

As already stated Philadelphia has a total of 170 mills manufacturing hosiery and knit goods: Of these 114 are in Philadelphia proper; 16 in Germantown; 7 in Frankford and 3 in Nicetown.

One hundred and forty-eight of the total number of factories report an aggregate of 15,464 knitting machines, as follows:

Philadelphia,	11,974
Germantown,	2,674
Frankford,	657
Nicotown,	159

Eighty-eight of the total number of factories report an aggregate of 3,227 sewing machines, distributed as follows:

Philadelphia proper,	2,341
Germantown,	754
Frankford,	107
Nicetown,	25

The State of Pennsylvania, outside of Philadelphia, contains 191 hosiery and knit goods mills, distributed as follows (the number of knitting and sewing machines appearing in the column opposite):

Adamstown: One mill.

Allegheny: One mill, 80 knitting machines.

Allentown: Five mills, 276 knitting machines and 43 sewing machines.

Annaville: One mill, 30 knitting machines.

Auburn: One mill, 38 knitting machines and 15 sewing machines.

Avon: One mill, 10 knitting machines and 15 sewing machines.

Bath: One mill.

Birdsboro: One mill, 24 knitting machines.

Boyerstown: Two mills, 25 knitting machines and 26 sewing machines.

Bristol: Three mills, 460 knitting machines and 100 sewing machines.

Centreport: One mill.

Chambersburg: One mill, 140 knitting machines.

Chester: Three mills, 65 knitting machines.

Collingdale: One mill, 20 knitting machines.

Coopersburg: One mill, 40 knitting machines.

Cressona: One mill, 20 knitting machines.

Danville: One mill, 150 knitting machines.

Downingtown: One mill, 19 knitting machines.

Duncannon: One mill.

Duryea: One mill, 24 knitting machines.

Easton: One mill, 511 knitting machines and 130 sewing machines.

Elizabethville: One mill, 22 knitting machines.

Ephrata: One mill, 19 knitting machines.

Fayetteville: One mill, 8 knitting machines.

Fleetwood: One mill, 31 knitting machines.

Georgetown: One mill, 20 knitting machines.

Grill: One mill, 22 knitting machines.

Hamburg: Two mills, 23 knitting machines and 28 sewing machines.

Harrisburg: One mill, 30 knitting machines.
Hawley: Two mills, 19 knitting machines.
Hazleton: One mill.
Hellertown: One mill, 17 knitting machines and 20 sewing machines.
Highspire: One mill, 3 knitting machines and 2 sewing machines.
Hummelstown: Two mills, 45 knitting machines.
Huntingdon: One mill, 35 knitting machines.
Kutztown: One mill, 13 knitting machines and 20 sewing machines.
Lenhartsville: One mill, 8 knitting machines.
Lewisburg: One mill, 20 knitting machines.
Lewistown: One mill, 36 knitting machines.
Lititz: One mill, 17 cylinder machines and 18 sewing machines.
Lykens: Two mills, 100 knitting machines.
Macungie: One mill, 50 knitting machines and 12 sewing machines.
Mahanoy City: One mill, 60 knitting machines.
Manheim: One mill, 30 knitting machines.
Marysville: One mill, 9 knitting machines.
Mechanicsburg: One mill, 20 knitting machines.
Middletown: One mill, 95 knitting machines.
Milford Station: One mill, 1 knitting machine.
Milroy: One mill, 90 knitting machines.
Milton: Two mills, 125 knitting machines.
Minersville: One mill, 8 knitting machines.
Mohn's Store: Three mills, 146 knitting machines.
Mohrsville: One mill, 11 cylinders and 21 sewing machines.
Mount Alto: One mill, 14 knitting machines.
Mount Holly Springs: One mill, 33 knitting machines.
Myerstown: One mill, 30 knitting machines.
Nanticoke: One mill, 100 knitting machines.
Nazareth: Two mills, 175 knitting machines and 75 sewing machines.
New Berlin: One mill, 24 knitting machines.
New Cumberland: One mill, 15 knitting machines.
Newport: One mill, 6 knitting machines.
Newville: One mill, 164 knitting machines.
Norristown: Five mills, 674 knitting machines and 43 sewing machines.
Oak Hall Station: One mill, 2 knitting machines.
Oreland: One mill.
Orwigsburg: One mill, 10 knitting machines and 18 sewing machines.
Palmyra: One mill, eight knitting machines.
Perkasie: One mill, 6 cylinders and 14 sewing machines.

Phoenixville: Six mills, 174 knitting machines and 96 sewing machines.

Pittston: Two mills, 78 knitting machines and 132 sewing machines.

Plymouth: Two mills, 525 knitting machines and 12 sewing machines.

Pottstown: Four mills, 12 knitting machines.

Pottsville: Seven mills, 143 knitting machines and 29 sewing machines.

Reading: Twenty-three mills, 1,705 knitting machines and 29 sewing machines.

Reinolds: One mill, 20 knitting machines.

Riegelsville: One mill, 13 cylinders and 11 sewing machines.

Robesonia: One mill, 20 knitting machines.

Royersford: Two mills, 257 knitting machines and 140 sewing machines.

Schuykill Haven: Eleven mills, 185 knitting machines and 200 sewing machines.

Scranton: One mill, 75 knitting machines and 110 sewing machines.

Sellersville: One mill, 6 knitting machines and 2 sewing machines.

Shamokin: Three mills, 250 knitting machines.

Shoemakersville: Two mills, 59 knitting machines and 10 sewing machines.

Slatington: One mill, 92 knitting machines.

Souderton: One mill, 50 knitting machines.

South Bethlehem: Three mills, 220 knitting machines, 15 sewing machines.

Spartansburg: One mill, 10 knitting machines.

Spring City: Three mills, 24 knitting machines and 75 sewing machines.

Steelton: Two mills, 26 knitting machines.

Stroudsburg: One mill, 19 knitting machines.

Snnbury: One mill, 21 knitting machines.

Tamaqua: One mill, 103 knitting machines and 8 sewing machines.

Tippecanoe: One mill, 8 knitting machines.

Titusville: One mill, 6 knitting machines.

Tower City: One mill, 5 knitting machines.

Tremont: One mill, 19 knitting machines.

Upper Black Eddy: One mill, 10 cylinders.

Waynesboro: One mill, 20 knitting machines.

West Chester: One mill, 30 knitting machines.

West Leesport: One mill, 30 knitting machines.

Wiconisco: One mill, 97 knitting machines and 15 sewing machines.

Wilkes-Barre: Three mills, 273 knitting machines.

Williamstown: Two mills, 69 knitting machines and 16 sewing machines.

Woolrich: One mill, 27 knitting machines and 9 sewing machines.

Womelsdorf: Two mills, 4 knitting machines.

York: One mill, 51 knitting machines.

Cotton in Decorative Fabrics.

However greatly the southern cotton planter may be indebted to New England for its vast consumption of cotton fibre in the fabrication of cloths for purely domestic uses, it is indebted almost wholly to the city of Philadelphia for the utilization of cotton as a distinct component in fabrics of a decorative character. The affinity of cotton for curious and beautiful dyes was known of course back in the centuries, but it was reserved for Philadelphia manufacturers of the present epoch to discern the value of cotton as a decorative adjunct and to conceive and fabricate into many beautiful textures, a vegetable fibre once generally tabooed in decorations.

It was in the period from 1880 to 1890 that cotton chenille was found applicable to window curtains, piano and table covers and kindred articles of household use. The web from which the chenille was created was originally woven on hand looms by slow processes and the secondary process—that of “setting,” or more strictly speaking, of weaving this chenille into homogeneous fabrics of ornate designs—was also achieved by hand workers, both processes being done on wooden looms, simple in construction and moderate in cost.

Pretty much every “school” of decoration was exemplified in chenille fabrics which were undertaken during the period named, and such was the popularity of the product thus obtained that the yield became enormous and the consumption general over the United States.

Germany quickly took the cue from the American mills and for quite a period, especially during the existence of low tariffs, the poorly made chenilles of the Germans imported into America, greatly affected the prosperity of our mills.

Few materials used in home decoration have attained the popularity of cotton chenilles. The curtains were and still are generally made in length of from three to four yards and in width varying from forty to fifty-four inches. Their exceeding cheapness coupled with decided furnishing qualities, made them favorites with contracting decorators and with the housekeeper as well; the result being that any indicated scheme of color could be secured and applied to household needs at a surprisingly small outlay of money. The manufacture of chenille fabrics quickly appealed to the shrewdness of the Philadelphia manufacturer. At first they were pro-

duced in cheaply built structures in Kensington or not infrequently in the old and decayed mills of that section. Such, however, was the demand for chenilles and so profitable was the industry that the pioneers in this line found hundreds of operatives necessary to their business and this led to the erection of some of the largest and costliest structures of the present day.

The one feature which made cotton chenilles so inviting a branch of manufacture was the simplicity of the processes and the absence of any costly mechanism as a necessity for their fabrication. The designs, though often of a high order of merit and worthy of the best textile artists, were reproduced from the paper into the cloth by an automatic process which any weaver of average intelligence could master. The creation of the designer's brain was reproduced by simply putting in correct juxtaposition the different strands of chenille weft, the yarns of the weft being first dyed in the solid shades and the varying colors grouped together in obedience to the draft of the artist. No jacquard being necessary, the weaver had simply to keep the design (or a section thereof) before his eye and to propel his loom. The design practically takes care of itself and the curtain or cover emerges with absolute nicety.

The United States Census of 1890 indicated the existence of numerous mills in Pennsylvania engaged in the weaving of upholstery goods, the majority of these producing more or less chenille fabrics.

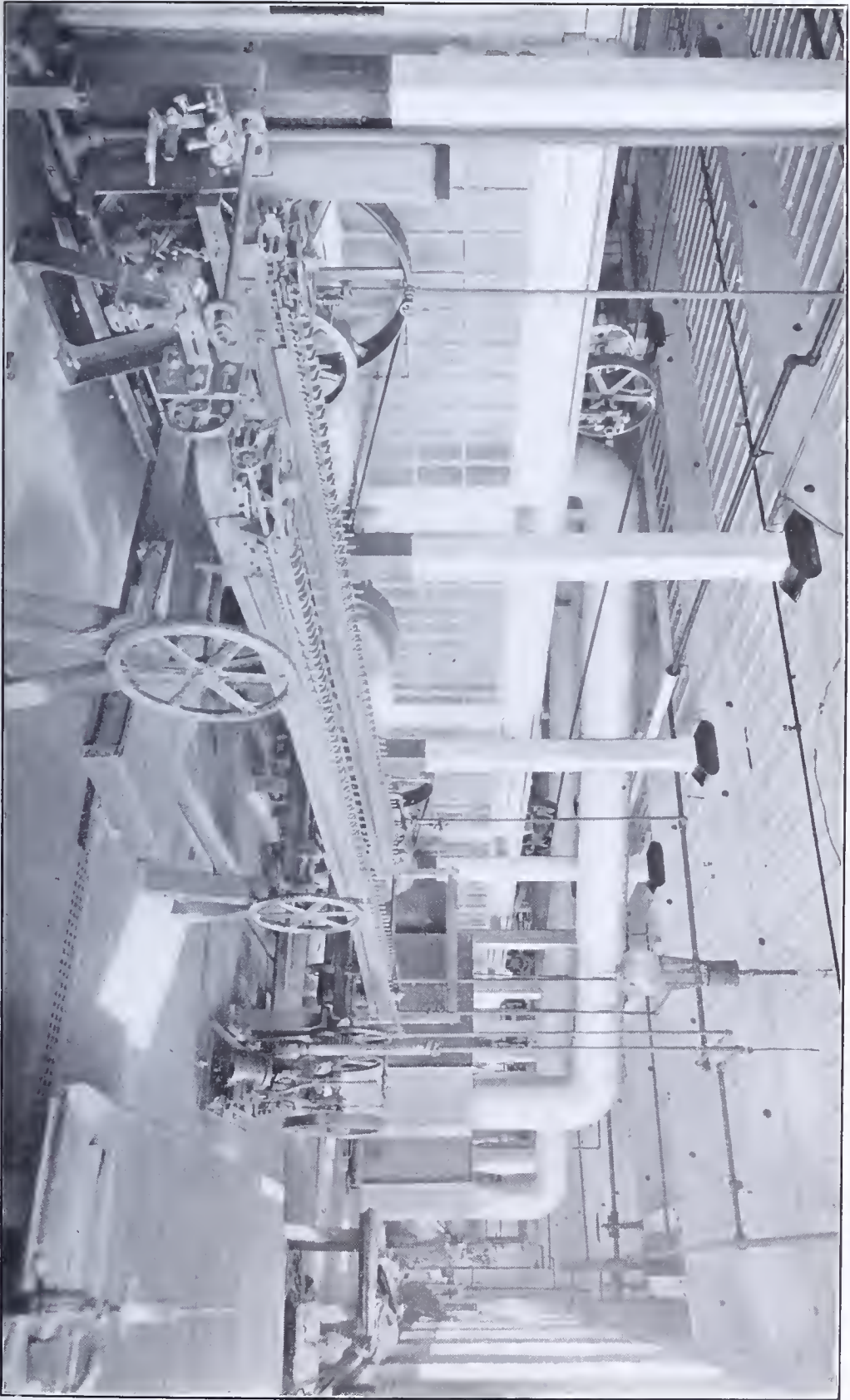
Early in the past decade, chenille began to wane in popularity, the consumption decreased and not a few makers abandoned the business. The older and stronger mills, however, which had invested largely in real estate and machinery, continued them on their lines and by varying their processes and imparting variety to their output, have fixed chenille as a staple American fabric.

A large number of weft and setting looms and very many operatives are still employed on these weaves.

Later Weaves in Decorative Cotton.

Responding to the demand for decorative fabrics fitted to take the place of chenilles, manufacturers have been quick in perfecting weaves that would accomplish this purpose. For a period extending back to 1880 and perhaps further, Philadelphia had produced with success, 50-inch tapestries constructed variously of silk and cotton and some of solid silk face; also a small proportion of the ramie fibre.

Careful experiment proved at this time that tapestries, curtains and table covers could be fabricated wholly of cotton and in designs which would appeal to the finer taste of the American consumer. The result was that within a few years a most remarkable consumption was observed of cotton stuffs coming under the designation of



View in a modern Cotton Goods Plant. Drving and Machine Room.

"tapestry." These goods were produced by the Jacquard process and designs highly intricate and ornamental in their character were successfully wrought out in fabrics which contained neither wool or silk but cotton and only cotton. Several of the larger mills engaged in the weaving of silken and woolen tapestries diverted considerable machinery on to cotton tapestries and with this came an improvement in the yarns, a certain glazed effect being imparted which added greatly to the lustre of the finished cloths.

It is interesting to note that the *motifs* which have generally influenced in the coloring and designing of these cotton tapestries and curtains, have been strongly oriental in tendency. This was found quite necessary by dealers in such stuffs as they were unable to comply with the schemes of the decorators unless they purchased the expensive cotton stuffs imported from India, Turkey and Egypt for like purposes. In short to produce a Turkish cosy corner or an oriental salon, we were driven to the use of fabrics from these countries and with a boldness quite to their credit, Philadelphia manufacturers determined to reproduce these eastern effects in textiles.

To such an extent has the weaving of cotton piece goods and curtains developed in Philadelphia, that it may now be strictly considered the habitat of the industry, there being little of such stuffs produced at any other point in the United States.

One of the largest and wealthiest mills engaged on these goods, as it is also on the highest grades of silks and brocatelles, has recently transferred its business from Paterson, N. J., to Philadelphia, erecting here a spacious mill of the most modern construction.

In addition to tapestries and covers, cotton finds its way also into numerous light weight fabrics intended chiefly for seashore use and for the furnishing generally of summer resorts and for summer furnishings in cities quite as well.

The union of a small percentage of richly dyed silk yarns into these light weight cotton curtains, has resulted in many effective and beautiful weaves which are marketed in every progressive city and town in the United States. The nomenclature of these weaves is very varied and the limited space of this report forbids particularizing their qualities.

Cotton vs. Silk in Plush.

The decline a few years ago in the use of imported silk plush created a demand for a similar fabric which could perform similar uses in covering and decoration. It was found that cotton was convertible into a plush having substantially the fineness and quite nearly the furnishing qualities of silk plush. Several mills have latterly engaged in the weaving of cotton plush and so cheaply it is

marketed and so varied are its uses that it may now be classed as a permanent friend of the cotton planter.

Philadelphia excels in its cotton plush output and in the printing of the same, by which methods the designs are applied. The goods are woven first in the "white" after which the cylinder color printer supplies an ornamented face.

There are probably twelve hundred hands employed in the various processes of cotton plush manufacture and there are several extensive mills where they are woven.

Printing of Cotton Textiles.

The application to cotton textiles of colored designs by means of cylinder rollers, the process being known as cylinder printing, has become a well fixed feature of the Pennsylvania industry. At Eddystone near Chester, is conducted one of the most interesting and successful plants of the present day, the sole business of which is the printing and decorating of cotton fabrics which come to them "in the white," i. e., to say, in the natural color of the yarn. Highly artistic results have been achieved in the printing of cotton cloths for art or decorative purposes. These are textiles are in widths up to fifty-four inches wide. One design may be composed of as many as fifteen colors, thus securing great richness and harmony with any color scheme of decoration.

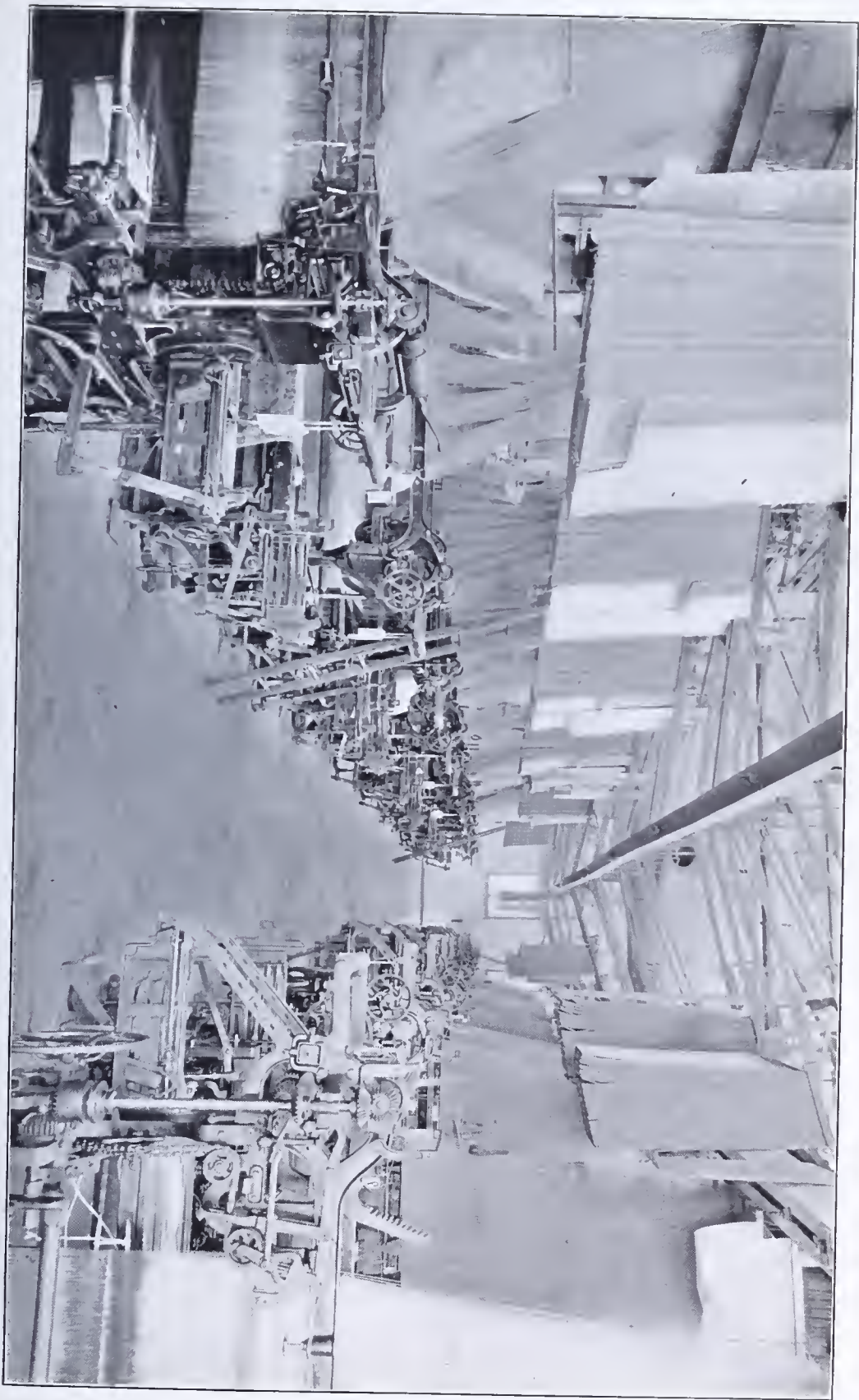
Women's dress goods are printed in highly effective patterns with the cylinder process, and the repute of Philadelphia is such that cloths in the white are sent here from various mills outside the State.

The cotton plushes above referred to constitute one of the most useful and effective decorative fabrics in the line of printed textiles. They are printed by the cylinder process, and both in colorings and designs, bear strong resemblance to the results reached by the jacquard machine.

Cotton Laces in Pennsylvania.

An industry which means much to cotton consumption in this country and which is fraught with a highly interesting history, is the planting in Pennsylvania within the decade past of the manufacture of lace curtains, lace bobbinet and kindred articles of the lace family. It was in the year 1891, that the firm of John Bromley & Sons determined to manufacture here the particular class of machine-made lace which has made the city of Nottingham, England, so famous for the past fifty years or more.

Desultory attempts had been made in New York State to weave Nottingham lace and a factory was projected at Galveston, Texas,



Section of modern Upholstery Looms with Jacquards.

in the heart of the cotton region, but it was reserved for a Pennsylvania firm to surmount the difficulties attendant on lace weaving and to successfully inaugurate in Philadelphia the first "Nottingham" lace mill. This was not the first lace mill erected in the State, however, this credit belonging to the city of Wilkes-Barre.

The machines requisite for producing Nottingham lace by steam power, are perhaps the most intricate and complex of any known to modern scientific discovery. Like Jacquard's great creation, and by whose aid it converts cotton yarns into the most exquisite creations, the modern lace loom is credited with almost human intelligence; the power in fact of doing what no human hand could do.

Experiments looking to lace weaving and to the lace principle, began as early as 1768, the inventor's scheme being that of producing open looped stitches which had a net-like appearance.

It was in 1808-1809, that John Heathcoat, of Nottingham, secured patents for his wonderful bobbinet machines, the appearance of which formed the real foundation of making lace by machinery.

These machines, a section of which are reproduced on another page, were improved on by John Leavers in 1813, whose fame in lace circles is equal to that of Heathcoat. Coupled with the Jacquard apparatus, there is no invention in the field of mechanics that excels the results of the lace power machine; the limit, in fact, of human ingenuity seems to have been reached in their conception and successful construction.

The Bromley lace works at Philadelphia take precedence as the first serious effort made to weave laces in America, and the formation of the industry was exceedingly interesting. The difficulties which lay in the way were of ancient origin and long standing. The lace curtain industry abroad belonged by right of primogeniture to the city of Nottingham, England. No other country in Great Britain or on the Continent had been able to induce the weavers away from Nottingham and all attempts to transplant the industry or to rear industries of a kindred kind in other cities where the competition would be felt, ended invariably in dismal failures. The lace weaver, moreover, had inherited his cunning from years of training and association with men, women and children who knew nothing else than the fabrication of lace. Nottingham not only had this advantage in the character of its operatives, but a half century of steady prosperity resulted in the investment of many millions of capital. The highest incentive existed, therefore, for keeping the secrets of the trade within its ancient borders. To this end emigration was discouraged, wages were kept high and the lace weaver and his family lived in decided comfort as compared with other branches of industry. Had a law not existed permitting the promoters of a

strictly new industry to contract for skilled help in foreign countries, the creation of the lace industry in Pennsylvania, would have been exceedingly difficult. Fortunately, however, the laws relating to contract labor were specific in their countenance of new industries and hence the skilled labor of Nottingham was finally induced to lend its aid in starting lace weaving in this country.

The first Nottingham lace machine or loom brought into the United States, was built in Nottingham, England, and was landed at New York in the early part of 1885. The loom was placed in an old shed factory at Fordham, N. Y., and its coming was widely talked of as an important event. The loom was built by John Jardine of Nottingham and was first operated by its owner, an Englishman by the name of John Willoughby. This machine is still in position in the lace works at Tariffville, Conn.

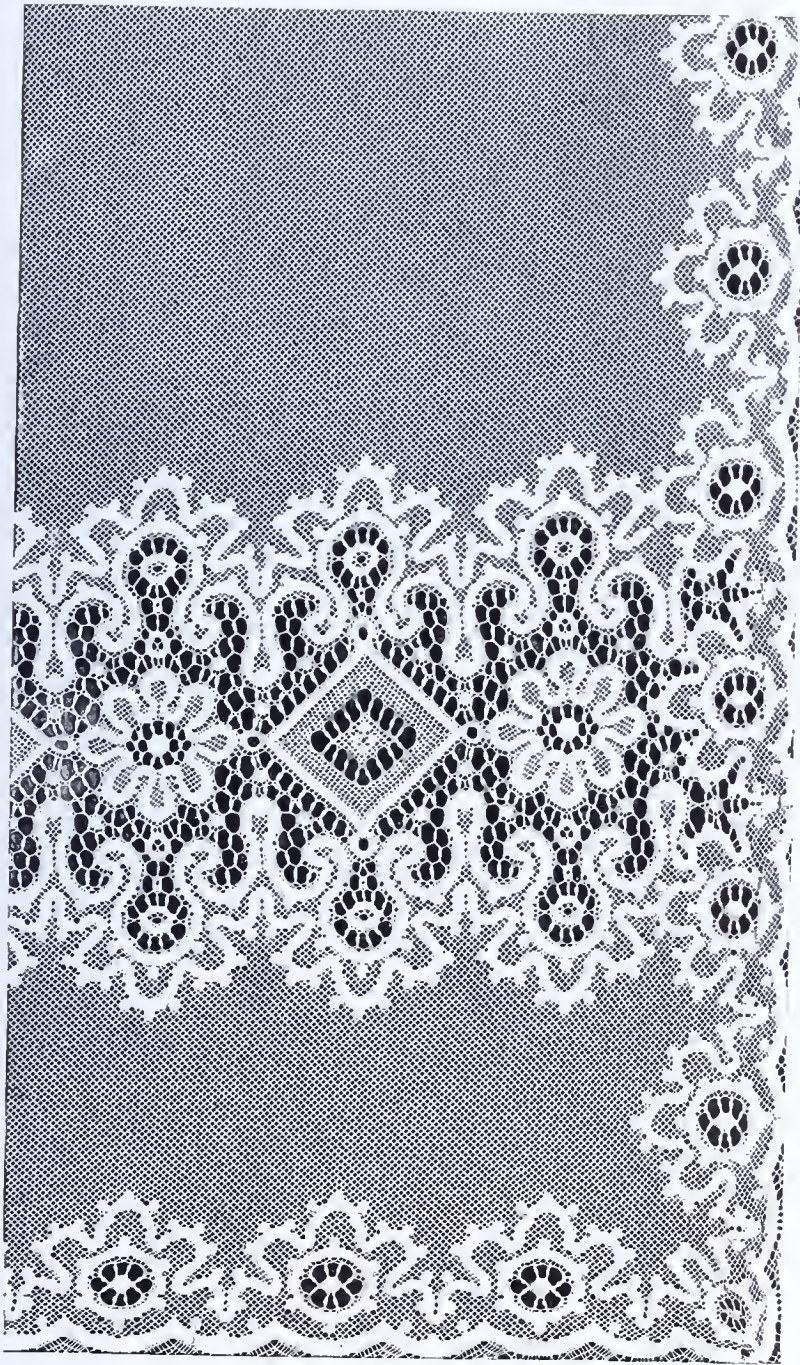
The lace plant at Wilkes-Barre, Pa., previously alluded to, was the first organized in Pennsylvania, commencing active operations about the spring of 1886, and three years later was credited with an annual output of 250,000 pairs of Nottingham curtains. In 1892 the plant produced 730,000 pairs of curtains and in 1899 the output had reached nearly 900,000 pairs.

During this initiative period, a few lace curtain looms were installed at Patchogue, L. I. (1890), but three years later the industry failed and was reorganized.

Prior to the installation of John Bromley & Sons' modern lace plant in Philadelphia, the output of the earlier mills had been of an inferior character, and no little trouble ensued on account of unskilled labor and the exactions of the trained help which had drifted from England when signs of a lace industry began to appear here.

In 1895 the city of Scranton, Pa., induced a lace firm to transfer its machinery from England to that point and curtains of a very creditable kind are now being woven there. At a little later period a lace mill was founded in the old town of Columbia, and within two years past, lace works owned by a wealthy English firm, long established in the trade, have been erected and are now operating at Chester.

At this writing there are nine lace curtain plants in the United States, their geographical location being as follows:



Section of a Nottingham Curtain Made in Philadelphia.



Section of a Nottingham Curtain Made in Philadelphia.

Plants in the United States.

Pennsylvania.	Machines.	Organized.
Philadelphia:		
John Bromley & Sons,	68	1891
Lehigh Manufacturing Co. (Jos. H. Bromley), (reorganization and enlargement of Horner Bros. lace plant),	76	1898
Wilkes-Barre:		
Wilkesbarre Lace Manufacturing Co.,	28	1888
Wyoming Valley Lace Mills,	11	1892
Scranton:		
Scranton Lace Manufacturing Co.,	15	1895
Columbia:		
Columbia Lace Co.,	15	1896
Chester:		
T. I. Birkin & Co.,	12	1899
Number of plants in Pennsylvania,	7	
Number of machines in Pennsylvania,	225	
Outside of Pennsylvania there are lace mills as follows:		
New York State:		
Patchogue, L. I.; Patchogue Manufacturing Co.,	14	1894
Connecticut:		
Tariffville; Tariffville Lace Manufacturing Co.,	7	1891

Recapitulation of the Lace Industry.

Total plants in the United States,	9
Total plants in Pennsylvania,	7
Total plants in Philadelphia,	2
Total number of lace machines in the United States. approx.,	246
Total number of lace machines in Pennsylvania,	225

A slight analysis of the above table shows that Pennsylvania possesses about nine-tenths of all the lace machines now installed in the United States, and while there are seven lace plants in the State, there are two in Philadelphia which overshadow all others both in the number of machines and the annual value of output.

As previously intimated, the difficulties which beset the path of the lace manufacturer in America had been of an extraordinary kind. In many respects it would be as difficult to put our work-people to making Turkish or India rugs by hand as to school them up to the art of imitating lace weavers of England and the Continent. Yet this has been done to quite a large extent in Pennsylvania within the past decade and our lace industry now is justly ranked as one of the most interesting and beneficent of all the textile industries.

The modern lace machine is immensely prolific. If it were not, the cost of a largely equipped plant would be almost prohibitory. A Nottingham lace machine 324 inches wide, capable of weaving seven to eight lace curtains (according to width) at one time, when landed in Philadelphia and installed in a mill, would represent an outlay of some \$8,000. The accessories, also of lace manufacture

other than looms, require vast outlays of money. The treatment of the yarns, the washing, bleaching, drying and sundry finishing processes before and after fabrication are numerous and tedious. The utmost nicety is necessary in all the gradations of manufacture and defects cannot be tolerated. Naturally, as lace draperies when in use are constantly under scrutiny, every process must be guarded in order that a pleasing result is obtained in the finished fabric. Fortunately for the mills who have undertaken this great industry, it is found that American help can quickly master the technical difficulties and it is safe to say that within a very few years the natural intuition of our people will result in a large corps of skilled help, fully equal to that found in the birthplace of the lace industry—Nottingham, England.

Origin of Machine Made Lace.

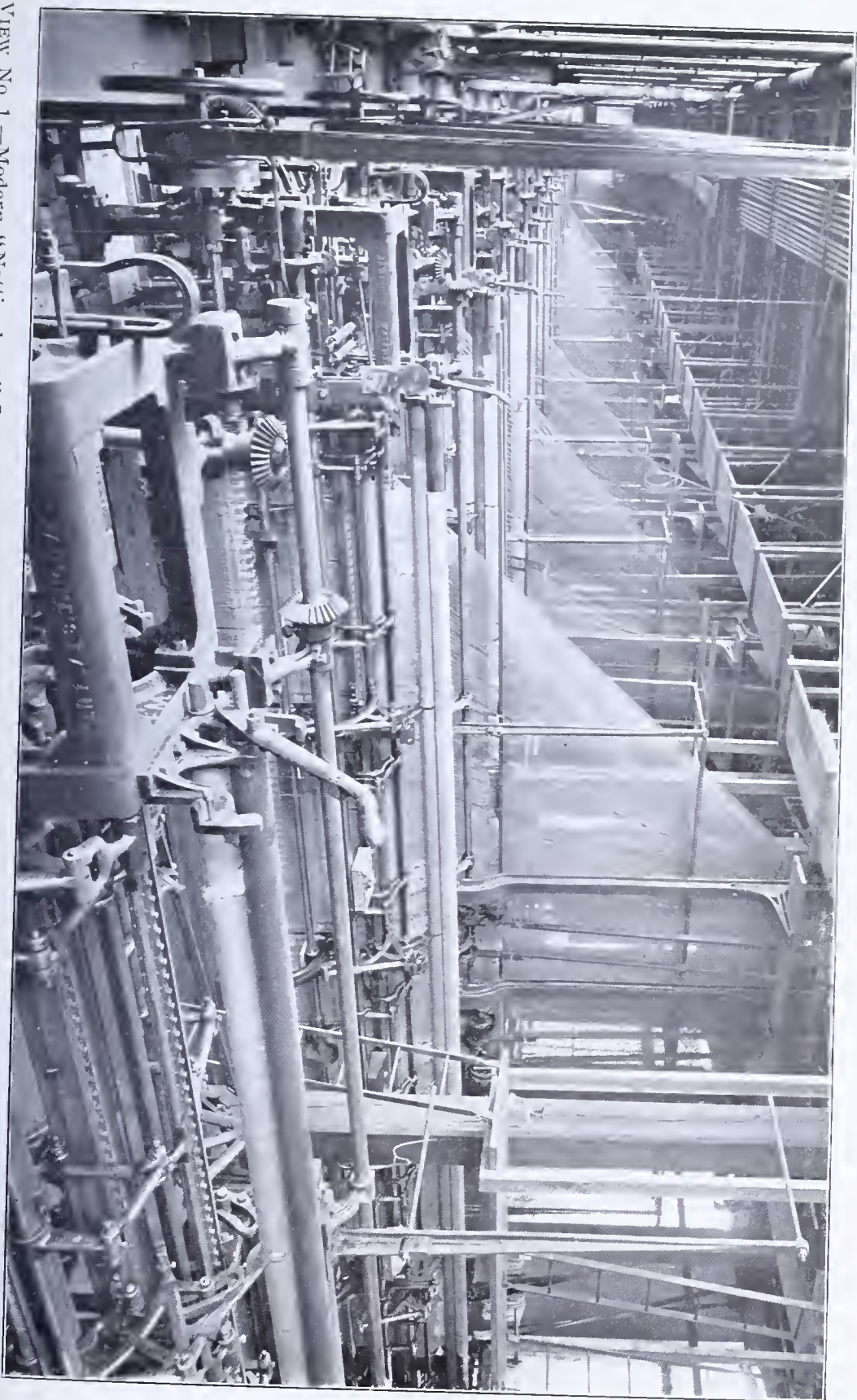
The manufacture of laces for curtains and kindred uses, took its inception in the stocking-frame. Dr. Andrew Ure, the learned student and writer on the cotton industry, wrote as follows concerning this device:

"The stocking-frame to anyone who attentively considers its complex operations, and the elegant sleight with which it forms its successive rows of loops or stitches, will appear to be the most extraordinary single feat, the most remarkable stride ever made in mechanical invention. Within a recent period, one may have seen in the Stocking Weavers' Hall, Red Cross street, London, a portrait of a man pointing to an iron stocking-frame and addressing a woman who is knitting with needles by hand. The picture was that of William Lee, A. M., of St. John's College, Cambridge, the inventor of the stocking-frame, who being reviled for his invention, went to France."

The story is that Lee was expelled from the University for marrying contrary to the statutes and that he and his wife, being poor, were obliged to live on her earnings as a stocking-knitter. There are other traditions about Lee and his invention, but whatever these may be, there is no doubt that he perfected the stocking-frame; that he established it at Culverton, near Nottingham; that he brought it to London to seek protection from the courts and that both Queen Elizabeth and her successor looked coldly on his inventions as likely to deprive the poor of labor and bread.

The encouragement which the English courts refused to Lee was offered to him later by Henry IV, of France, and his sagacious minister, Sully. They invited Lee to come to France with his admirable machines. He accepted and settled at Rouen, giving an early impulsion to manufactures. After King Henry had fallen the victim of

View No. 1.—Modern "Nottingham" Lace Curtain Mill. Showing Looms 324 inches wide—First successful Plant in Pennsylvania.



treachery, Lee, envied by the natives whose genius he had eclipsed, was persecuted as a Protestant, and it is said ended his days in secret grief in Paris. Some of his workmen fled into England, where under Lee's apprentice, Aston, they mounted the stocking-frame with some improvements, and thus restored to its native country an invention which had been well nigh lost to it.

The first frame was brought into Leicestershire in the year 1640, and thus laid the foundation of the hosiery trade, since so widely developed in the counties of Nottingham and Derby.

Lee's stocking-frame was exceedingly simple, being a twelve guage with jacks only. Aston of Thornton, a miller by trade, added the lead-sinkers. The frame became accessory to a number of light industries closely allied to that of hosiery. The principle of the stocking-frame was applied to the knitting of various other articles in the course of the eighteenth century. In 1778, rich brocades for waistcoats were made on a similar frame, and in about two years thereafter vandyke work was attempted by appending a warp-machine to a plain stocking-frame. Robert Frost, of Arnold, invented the figured eyelet-hole machine, and in concert with Thomas Frost, obtained patents for various inventions which led the way to the net and lace-frames.

The first machine for making lace with a stocking-frame was built in 1777, and was claimed jointly by Robert Frost and by Holmes, a poor workman of Nottingham. This was superseded later by the point-net machine, invented by John Lindley. Later, one Taylor, of Chapelbar, patented an improvement, as did Hiram Flint. Early in the nineteenth century, nearly the whole of the machine-made lace was produced from these point-net machines—mechanisms probably more delicate than any other ever used for manufacturing purposes.

In the year 1802 or 1803, the manufacture of lace-net from the warp-machine was successfully revived at Nottingham. Several improvements began now to be made on it which gave to this modification of net-work such value that in 1808, it competed in the market with point-net.

The fabric thus produced was always considered to derive its principal merit from its imitation of the bobbin or cushion-lace. The resemblance, however, was imperfect, as the net made of cotton thread was greatly inferior to the proper lace fabric. To remedy these imperfections became, therefore, the dream of many ingenious artisans about Nottingham, and liberal prices were offered by lace manufacturers.

The facts that we have been reciting led up to the conception and perfecting of the bobbinet and to the wonderful results in mechanism which are now giving precedence to Pennsylvania as a lace-producing State.

It was in 1809, that John Heathcoat, of Loughborough, after a long and painful effort, became able to give the trade the benefit of his genius.

It is due tradition to say that the principle of Heathcoat's patent had been embodied since 1803 in a machine for making fishing-nets, the invention of Robert Brown or his partner, George Whitmore, both of Nottingham. Mr. Morley, indeed, the eminent lace manufacturer, wrote: "This machine (Robert Brown's fishing-net machine) possesses all the essential principles and properties of Heathcoat's patent bobbinet machine and is in fact, to all intents and purposes, a bobbinet machine." To this machine, therefore, must be traced the origin of the curious invention of the bobbin and carriage; to it also, must be referred the method of using two divisions of threads, the warp and the bobbin; and to it alone must be attributed the beautiful idea of passing, or, as it is generally termed, twisting, two divisions of threads with order and regularity and without entanglement distinctly round each other.

The idea of reducing the thickness of the bobbin and carriage to a scale fit for the fine meshes of bobbin-lace, seems to have been originated with Edward Whittaker, of Radford, who had obtained a knowledge of Brown's fishing-net machine. Other inventors laid their tributes at the feet of the manufacturers, but to none is the lace industry more indebted than to John Leavers, Sr., of New Radford. His apparatus bears strong resemblance to Heathcoat's in many prominent features, but deserves particular notice because of its general adoption by the trade.

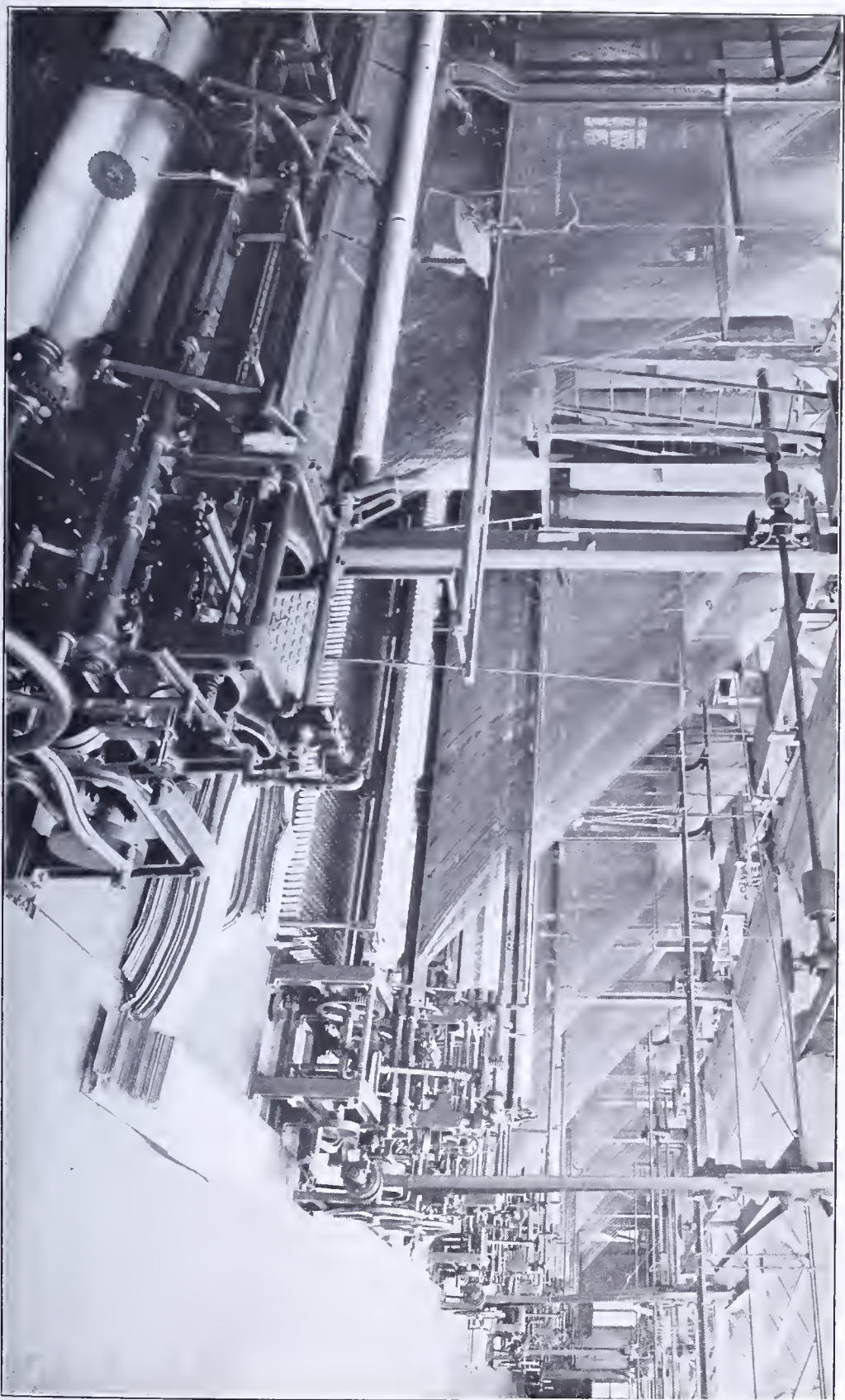
Ordinary bobbinet lace resembles in its texture the plainer kinds of pillow-made lace. The threads are entwined together, so as to form perfectly regular six-sided holes, the two opposite sides of which, the upper and under, lie in the direction of the breadth of the piece so as to stand at right angles with the selvage or border line.

The beauty of bobbinet lace depends not only upon the quality of the threads but principally upon the perfectly hexagonal shape of the holes and equality of their size. The nearer the warp threads lie alongside of each other, the smaller are the holes and the finer looking is the lace. The number of warp threads in a piece one yard wide may vary from 700 to 1,200, which corresponds to from about twenty to thirty-four in the inch.

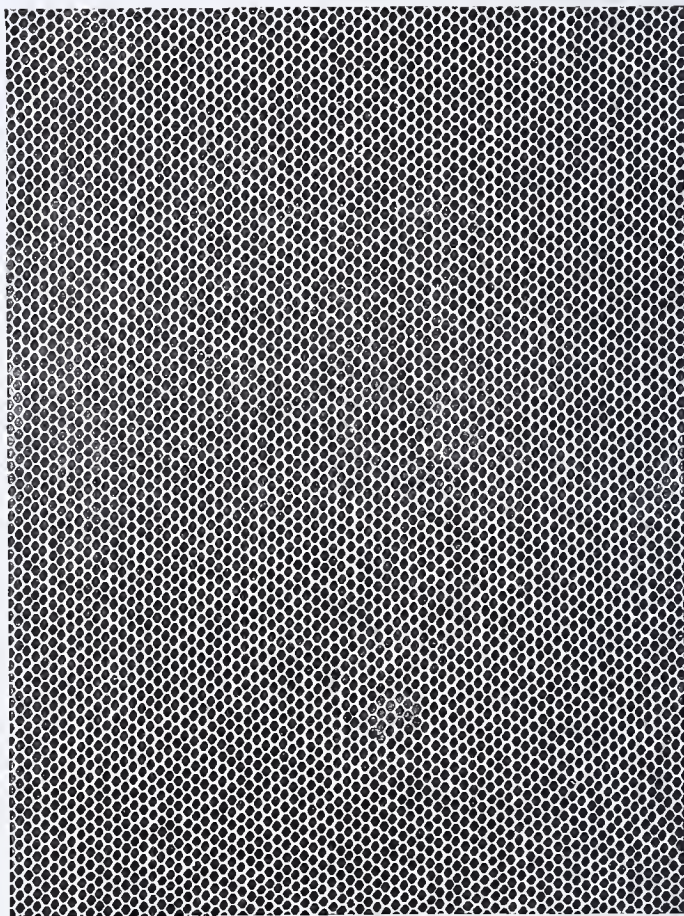
The breadths of the holes cannot, however, be directly deduced from these numbers because the holes are enlarged by the serpent-like bendings of the warp threads.

Plain, unadorned bobbinet lace is made now in Philadelphia by one mill and is one of the most useful of all woven products.

It is assumed that lace manufacture entails the employment of ten persons, old and young, for each machine installed and that five per



VIEW No. 2.—Modern "Nottingham" Lace Curtain Mill. Showing reverse end of Looms.



A Piece of Bobbinet Lace.

cent. must be added for the mechanical staff. Allowing ten persons for each lace loom in position in the United States, there would seem to be 2,250 mill hands engaged in this industry, plus five per cent. for the mechanical staff, making the total about 2,362 hands.

The lace industry is a clean, wholesome one, and the mills being modern, well ventilated and well lighted, boys and girls of tender years find instructive and lucrative employment at lace making. A robust child starting at \$3 per week, earns after a year's instruction, \$5 per week, and the average rate of wage throughout the lace mills is from \$8 to \$9 including children, while the pay of expert adult weavers runs from \$18 to \$22 per week of fifty-six hours.

All apprentices in the lace trade are mainly American born, while the experts are of English origin and are generally from about Nottingham. Designing for the lace curtain trade is an art within itself, the Nottingham School of Art being the parent of this class of decorative work. The larger mills in the United States employ their own designers but all the mills are open to the purchase of meritorious drawings from whatever source.

Cotton yarns for the lace mills are spun in New England to some extent and the coarser numbers are readily produced in the southern cotton mills, say from 40's up to 50's in number. One mill in Chester, Pa., spins lace yarns from 20's to 60's. Manchester, England, is famous for its fine lace yarns, the numbers running from 60's to 100's. These finer numbers are as yet not produced at all in the United States so far as we are informed.

The modern wide lace machine of 324 inches is capable of weaving from fifty to 175 pairs of Nottingham curtains per day; the character of the design and the capability of the weaver being important factors in the aggregate of each loom's daily output. Within ten years the American market has become almost wholly independent of the English laces, and this after fifty years of entire dependence on this one source of supply. As yet the Pennsylvania lace mills have not attempted to export their products as the English and Scotch mills have thoroughly pre-empted such European countries as have no machine lace industry of their own.

Richard Arkwright, whose name occurs in pretty much every book or pamphlet relating to textiles in the Nineteenth Century, was born at Preston, England, December 23, 1732, of poor parents. He was the youngest of thirteen children and the mental training that he received was exceedingly limited. His first calling was that of a barber, which trade he followed at Kirkham, Preston and Bolton. Arkwright's first secret, if such is may be called, was a chemical process for dyeing human hair. That being a period of huge wigs he did considerable business in travelling over the country and collecting hair and disposing of it when dyed. In 1761, he married a woman

from Leigh, where it is believed that he got acquainted with Highs' experiments in making spinning machines. Arkwright disclosed a strong bent for experiments in mechanics and this he followed so closely as to injure his business. His natural disposition, however, was ardent and stubbornly persevering, but his mind was described as coarse, bold and active and his manners rough and unpleasing.

In 1767, Arkwright became acquainted with Kaye, a clock maker at Warrington, who he employed to bend him some wires and turn him some pieces of brass. What these were for, it is not clear, but in



SIR RICHARD ARKWRIGHT

Rich. Arkwright

conversation with Kaye, the latter told him of Highs' scheme of spinning by rollers. Kaye in his evidence asserted that Arkwright induced him to make a model of Highs' machine and that he took it away. It is certain that from this period, Arkwright abandoned his former business and devoted himself to the construction of the spinning machine; also that he induced Kaye to go with him first to Preston and afterwards to Nottingham, binding him in a bond to serve him at a certain rate of wages for a stipulated term. Ark-



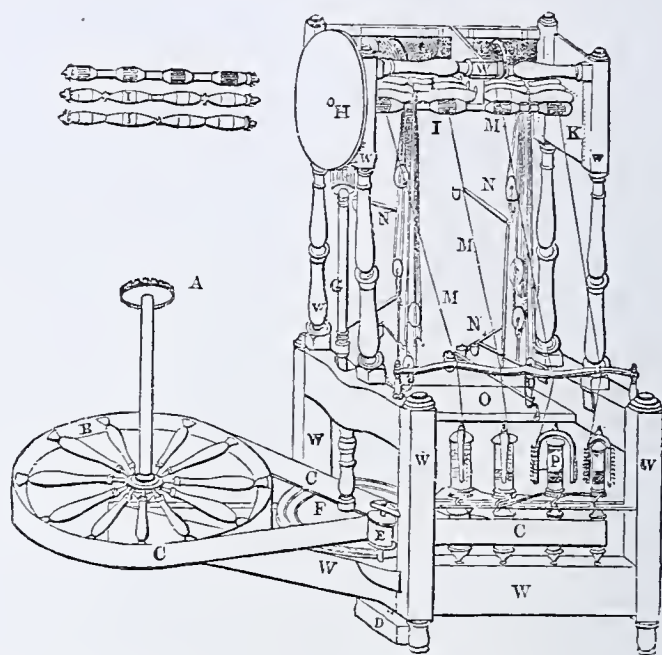
View No. 3.—Modern "Nottingham" Lace Curtain Mill. One of the Finishing Processes.

wright's right to be classed among the great inventors of the cotton industry, has been severely questioned and the particulars of what passed between Arkwright and Kaye rest wholly on the evidence of the latter. There is no doubt that Kaye was engaged to accompany Arkwright and that he worked for him some time in Nottingham. Those who believe in the invention of Higs's, find in this fact, combined with Higs's own evidence, a very strong presumption in its favor; but those who disbelieve it, may adopt the conjecture that not being a practical mechanic, Arkwright engaged the clock maker to construct the apparatus he had himself contrived. In his "Case" drawn up to be submitted to Parliament, Arkwright stated that, "after many years' intense and painful application, he invented, about the year 1768, his present method of spinning cotton, but upon very different principles from any invention that had gone before it."

Nevertheless, Mr. Baines in his history of Cotton Manufacture, says that while Arkwright had been experimenting in mechanics, there is no evidence to show that he had ever thought of making a spinning machine before his interview with Kaye at Warrington. Kaye appears to have been unable to make the whole machine, and therefore he and Arkwright applied to Peter Atherton, of Warrington, to make the spinning engine. Arkwright was so seedy in appearance that Atherton refused to undertake it, though afterwards on the same day, he agreed to lend Kaye a smith and watch-tool maker to make the heavier part of the engine and Kaye undertook to make the clock maker's part of it and to instruct the workmen. In this way Arkwright's first engine, for which he afterwards took out a patent, was made. Being destitute of money for prosecuting his invention, Arkwright repaired to Preston, and applied to John Smalley, a liquor merchant, for assistance. The famous contested election at which General Burgoyne was returned, occurred during his visit. Arkwright voted; but the wardrobe of the future knight was so tattered that a subscription was taken up to put him in a decent plight to appear at the poll room. His spinning machine was fitted up in the parlor of the house belonging to the Free Grammar School, the head master of which, Mr. Smalley, believing in Arkwright's invention, joined with him both in heart and purse.

In consequence of the riots which had taken place near Blackburn over Hargreaves' spinning jenny in 1767, by which many of the machines were destroyed and the inventor driven to Nottingham, Arkwright and Smalley fearing similar outrages directed against their machine, went also to Nottingham, accompanied by Kaye. This town, therefore, became the cradle of two of the greatest inventions in cotton spinning. Here, also, they applied to certain bankers for aid and luckily enough obtained sufficient means to bring the inven-

tion before the mills. Arkwright soon made his machine practicable and in 1769 he took out a patent.



Arkwright's Original Patent Water-Frame Spinning Machine of 1769.

The Mercerization of Cotton Yarns.

The soft and yielding nature of the cotton fibre and its lack of tensile strength and also of the resilient qualities which attach to vegetable fibres of tougher growth, impelled the early English workers in cotton yarns to discover some process by which cotton faced fabrics could be imparted a glazed or silk-like effect. The glazed effect was long since achieved in highly twisted cotton threads but to secure this effect to the larger and therefore softer numbers of cotton yarns proved difficult in the extreme. Chemicals applied to cottons for this purpose in the earlier experiments were found injurious and hurtful to the working qualities of cotton yarns when subjected to the strain of power looms. It was somewhere about the year 1844, that the experiments of an English dyer, John Mercer by name, developed the fact that fabrics of cotton could be given a rich and silk-like appearance by the use of certain simple chemicals. About this time John Mercer was led to filter caustic soda through squares of cotton cloth. He perceived at once the pleasing results of his experiments and happened one day in testing its strength to splash it with a dye. Greatly to his joy, he found that the soda bath rendered the woven fabric about twice as strong and also twice as susceptible to liquid dyes.

Naturally, what could be done to the cloth after it left the loom,

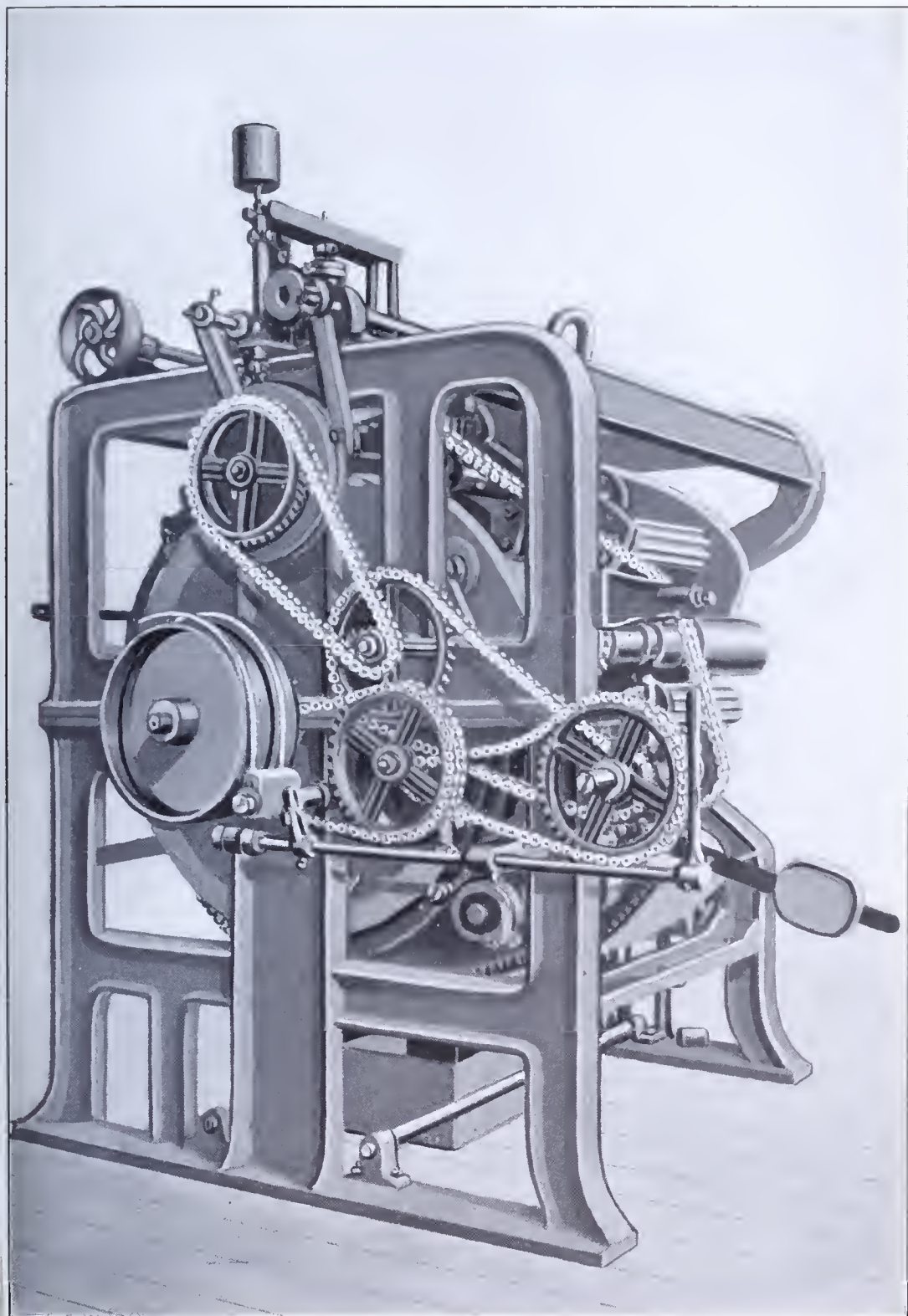


FIG. 1—Modern Mercerizing Machine.

could be done to the spun yarn before it entered the weaving process and the long sought for "silk effect" had apparently been reached. Mercer's discovery quickly came to the notice of French weaving mills and a strong effort was made to get hold of the formula. According to accounts, he was offered \$200,000 for his secret by a French firm. Mercer seemed to be too elated with his discovery to sell. He had an idea that a great syndicate with himself at the head, could be organized and that millions of dollars profit could be made each year, as the cotton mills in all parts of the world and especially in the United States were eager for the process.

Just here, the defects in Mercer's invention began to reveal themselves. The savings by his process were evident, in that one thread was equal to two in tensile strength; it required only about half the quantity of dyes that had hitherto been used and what was more important, the glazed effect had been fully achieved. It was found, however, that in Mercer's process there was a serious shrinkage in cloth subjected to the caustic soda bath. A yard of cloth would save in dye stuffs and in raw stock, say five cents to its makers, but it would come out of the mercerizing bath only three-quarters of a yard in length. Against the profit of five cents a loss through shrinkage of about ten cents a yard would have to be offset. This, as the story goes, prevented Mercer from forming his syndicate and explains why mercerizing was of little commercial importance until latterly.

After his refusal to let the French have his secret, and following the exposure of the defects in his process, Mercer toiled twenty years in his efforts to perfect his schemes and then died disheartened. His name, however, still lives and the mercerizing of cotton has within ten years become a distinct and indispensable feature in the finishing of cottons.

About the year 1890, Horace Lowe, in England and Thomas and Prevost, in Germany, began their efforts to overcome the shrinkage which had prevented Mercer from tasting the fruits of his endeavor. Their success has been phenomenal, a beauty and finish being now observed in cotton cloths that a half century of steady effort had been impossible to bring about.

The later departures from Mercer's methods seem to have been about these: Mercer had taken his cotton and subjected it to a three hours' bath in caustic soda and then washed it; this being mercerizing in its simplest terms. The idea seems to have come simultaneously to the Englishman Lowe and to the Germans Thomas and Prevost of keeping the cotton cloth stretched while steeping it in the caustic soda bath. They tied the ends of their cotton threads to sticks and then mercerized them. The sticks did not break; the

threads did not even show signs of shrinkage. To their great relief, cotton thus mercerized under tension came out glossy, soft and rustling. The yarns thus treated became known as silkline, and so lustrous was the finish that the boast was made that cotton had been transformed into silk. The patents relating to the achievements of the three men named have been fought over considerably, however, this may be, the mercerizing process is now fully fixed in the American industry and notably in the city of Philadelphia.

The explanation of the lustre that cotton takes on through mercerizing is considered extremely simple in textile circles. It is contended that the soda and the tension together changes effectually the nature of the cotton fibre. Natural cotton fibre is inherently flat and shrivelled. After receiving the mercerizing bath, however, the fibre seems to fill out and to become round and smooth. One writer likens the results to a dried raisin which is notably without lustre, whereas the full ripe grape catches and throws back the light. There is no lustre to a flat fibre of the natural cotton, but on the mercerized sort the light shines and is reflected just as it is on the grape.

In 1890 when the importance of John Mercer's invention began to loom up, there was an extraordinary demand in England, Germany, France and the United States for cotton yarns which would stand the strain of manufacture and emerge from the loom into lustrous and durable cloth. Dyers, weavers and interior decorators were constant in their demands for this improvement in cotton. It is said that all the machines are, in principle, alike. There is a hollow, perforated cylinder, called a kier, about which the cotton wraps itself at the proper tension. The kier is filled with the mercerizing liquor, a 50 per cent. twaddle solution of caustic soda, and the air is exhausted from it and the liquor is forced out of the kier's perforations into the cotton. This goes on for from two to five hours. Then the kier is emptied of the soda, water is run into it, the cotton is washed for a few hours and then dried. As soon as the washing begins the lustre appears. This lustre, once acquired, never leaves the cotton. It endures as long as the fibre holds together.

A variation of the process of mercerizing and one which yields a striking result is that in the manufacture of imitation seersucker. The original of this seersucker fabric was almost prohibited by reason of its cost. Mercerizing, however, has produced such clever imitations that the latter can scarcely be detected from the genuine fabric. The cloth which comes out imitation seersucker, is run through a machine unstretched, caustic soda being squirted on it in parallel stripes. There being no tension, the soda thus applied, causes the stripes to shrink and crinkle up and thus a piece of the cheapest cotton fabric is made to cleverly represent the costly silk

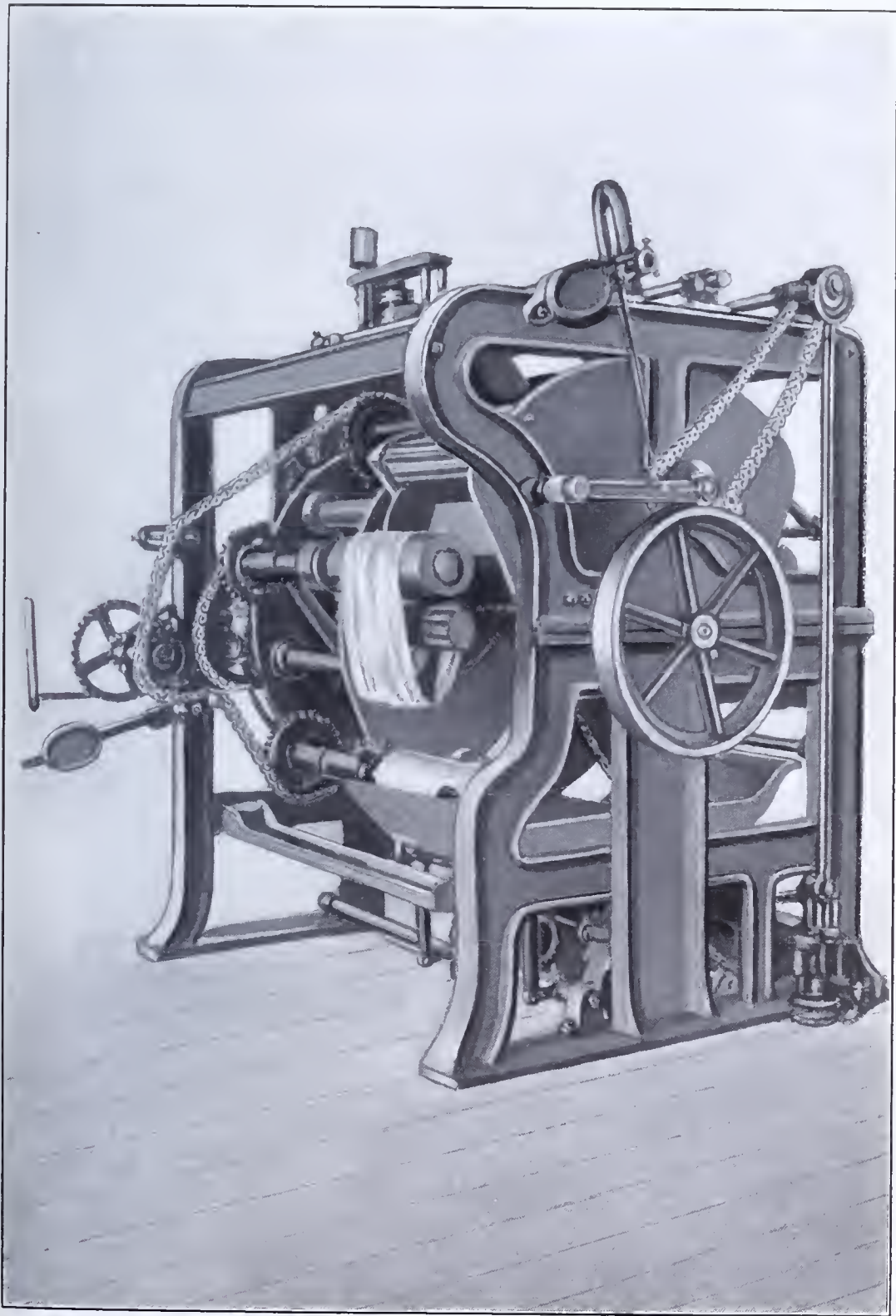


FIG. 2.—Modern Mercerizing Machine.

and bamboo seersucker of India. The dyers who first began to mercerize cotton charged from forty to fifty cents per pound for applying their secret, their profits being enormous. Even the charge to-day with many mills at work, is at least fifteen cents per pound and this, it is said, pays a very fair profit. At any rate the mercerizers are scarcely able to keep up with their orders.

Mercerizing in Philadelphia has become an important industrial feature. A number of establishments profess to treat cottons after the improved German and English methods, and the remarkable silk-like finish of cotton fabrics woven of mercerized yarns in Philadelphia, seems to give full proof that the secret is now fully disclosed.

Cotton in Floor Coverings.

In its report on the carpet industry, issued by the Bureau of Statistics in 1889, the subject of both cotton and wool as component parts of carpeting was carefully treated, and the general conditions of their use as outlined at that time remain unchanged.

Cotton yarn is used to some extent in the manufacture of all grades of carpeting, excepting perhaps in the highest grade of ingrain. In pile carpets it is found usually as a part of the binding, backing or filling.

The methods treating cotton yarn have reached such a high state of perfection, that it can be introduced into floor coverings and when the goods are finished, it puzzles an expert often to determine which is wool and which is cotton.

There are located in Philadelphia, several carpet mills which produce only cotton carpets, the fabrics being woven of cotton yarns both warp and filling. Their output is attractive both in colorings and designs, and the goods can be sold at low prices and yet yield a good profit.

Recently Philadelphia manufacturers have commenced the production of seamless cotton rugs, in sizes as large as 9x12 feet. These are put out in competition with the Japanese and Chinese rugs of similar make, and are the first ever produced either in the State or the United States. The colorings are confined to two tone effects, usually the natural white and either a blue or green. Great quantities of the Chinese and Japanese cotton rugs have been imported during recent years, and sold quickly at low prices. This effort to make the goods in Philadelphia is attracting close attention, and the results thus far have been successful.

Cotton and Jute Fabrics.

There has been a remarkable increase in the consumption of rugs and art squares in this country within recent years and as a result

of this a number of new mills have commenced the manufacture of these, using cotton and jute mixtures instead of wool, thereby heavily decreasing the cost of the finished product.

In Philadelphia, within five years past, five mills have commenced the manufacture of smyrna rugs, using principally cotton and jute in their product. Two of these mills weave by steam power, and the other three use hand looms. In size the rugs are made up as large as 9x12 feet, and at the prices for which the goods are sold, the consumer gets an excellent article. There are in Pennsylvania at present, ten mills making jute and cotton rugs, nine of which are in the county of Philadelphia.

The adaption of cotton and jute to the manufacture of art squares has been accomplished satisfactorily by a number of new mills within a comparatively short time, and there are now in Philadelphia four mills which confine themselves to making goods of this class only, and they all seem to find a ready outlet for their product. Power looms are used without exception.

At Norristown, two mills are also running, which make cotton art squares their specialty, and a total of about thirty power looms are in operation.

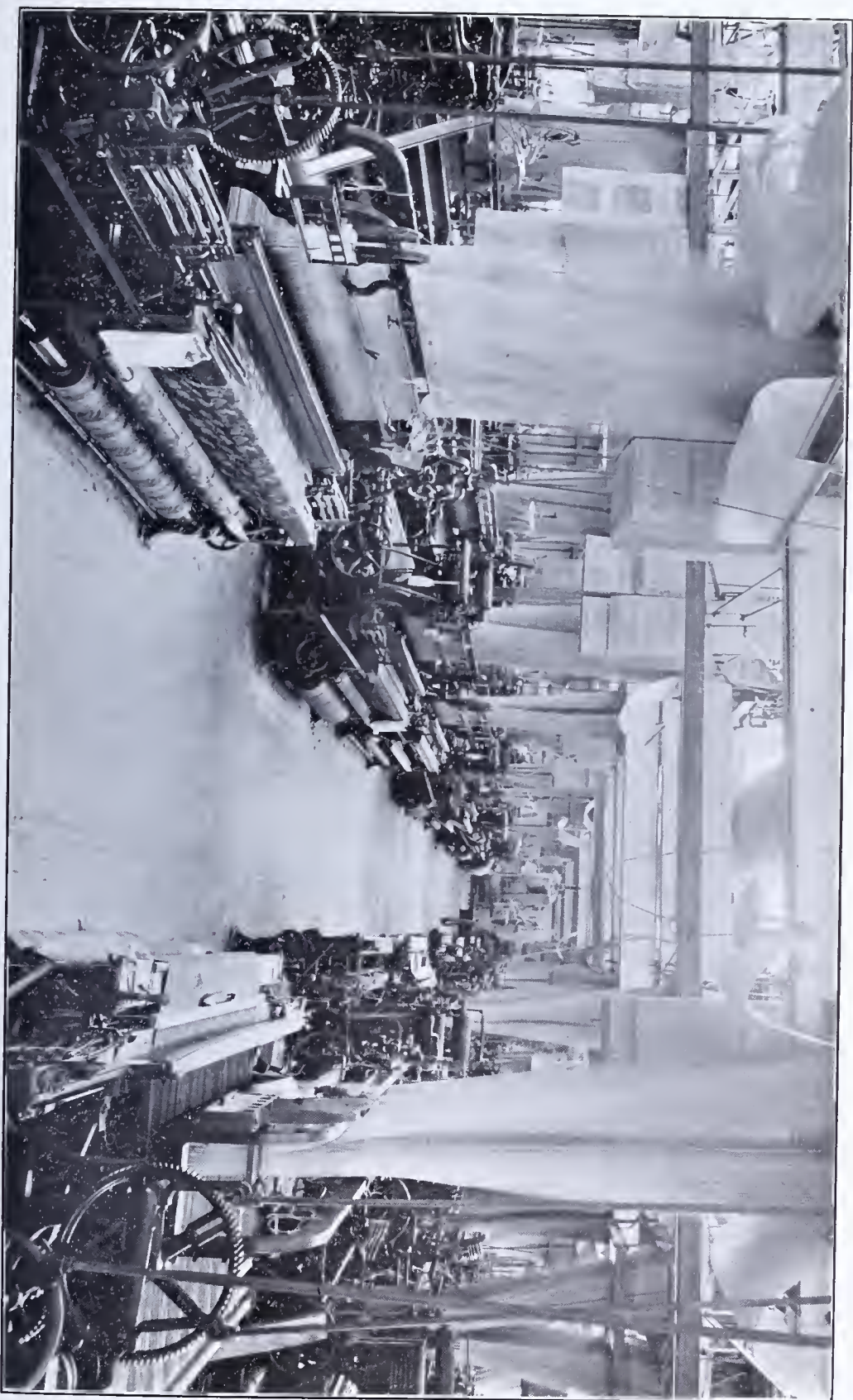
Even in the fine body brussels, wilton, and in tapestry brussels and tapestry velvet carpets produced in Philadelphia, cotton yarns form a small integral part of their fabrication, though in these particular weaves no cotton is exposed on the face.

Ingrain carpets composed wholly of cotton warp and cotton filling, have long been a feature of the Philadelphia industry. The cost of these fabrics to the consumer is of course affected by the rise and fall in the price of the raw staple and of the yarns into which it is spun. Such carpets have always been extremely cheap as contrasted with what are termed all-wool carpets.

During the present year raw cotton has sold for from three to four cents per pound more than it did a year ago, and as a result, all grades of cotton are correspondingly advanced. Yarns for cotton carpets are spun almost wholly in the Southern States and Philadelphia is dependent on these mills for its supplies. Few mills of importance exist in Pennsylvania for the spinning of cotton yarns adapted to carpets; nor for that matter to any other kind of cotton fabrication except hosiery. The southern mills may be said to have pre-empted that field of industry, the finer grades of cotton yarns being produced as heretofore in New England.

There are very few carpet mills that confine their machinery exclusively to cotton carpets. Pretty much all the large ingrain plants which produce all-wool ingrains, accept orders from their customers for what are known as 7, 8, 9 and 10-pair all-cotton carpets.

Through the ingenuity of Mr. Harry Hardwick, of Philadelphia,



Section of Broad Upholstery Looms for weaving mixtures of Silk, Cotton, Etc.

who is perhaps the most eminent inventor of improved carpet weaves of the present day, the technique of cotton ingrains has been greatly improved upon, the result being that several heavy cotton fabrics, possessing fine wearing qualities, are now available to consumers.

A Few Leading Industries at Chester.

The flourishing city of Chester, Pa., has achieved great prominence within the twenty years past in the fabrication of textiles both cotton and wool, and such as utilize these fibres in one fabric.

The Aberfoyle Manufacturing Company, of Chester, are accorded the honor of making the largest and most comprehensive line of fancy cotton goods in the State. This mill is interesting from the fact that while some wool and silk yarns are consumed in their fabrics, their chief yardage is in goods composed wholly of cotton, men's shirtings of cheviots being one of their principal weaves. In the different fabrics produced, the company consumes coarse and fine cotton, Egyptian and Sea Island cottons, besides yarns of worsted and wool, merino, silk and linen. Mercerizing is done at this mill on a large scale by machinery designed and patented by the Aberfoyle Manufacturing Company. The company is now exhibiting specimens of its weaves at the Paris Exposition.

The Aberfoyle Manufacturing Company is incorporated for \$300,000; their mill is 300x225 feet in dimensions and four hundred hands are given employment with the best facilities for the rapid production of the output.

Another well known mill is that styled the Gayley and Lord Manufacturing Company, the output being similar to that of the Aberfoyle Manufacturing Company. This mill employs two hundred and fifty operatives, is chartered for \$305,000 and the structure is 250x124 feet in size.

The Eddystone Manufacturing Company, just out of Chester, is one of the most unique industries of the present day. The company are printers of cotton prints, these including dress goods and decorative draperies of all classes and kinds. Eddystone printed fabrics are exported to Great Britain, France, Germany, South America, Cuba and Porto Rico. The plant of the company covers in its entirety about forty acres of land, dotted here and there with wood, stone and brick buildings of various heights and equipped with modern machinery, much of which is unknown to any other plant in the United States. Ninety to one hundred steam engines are employed by this company with a combined power of 4,000 horse, connected with three batteries of boilers. The plant furnishes work for eleven hundred to fourteen hundred operatives and can produce 40,000 pieces of printed cloth weekly. Textile printing from the common-

est calico to the finest tapestry is done successfully at Chester, and is done as in no other place of the United States at this time.

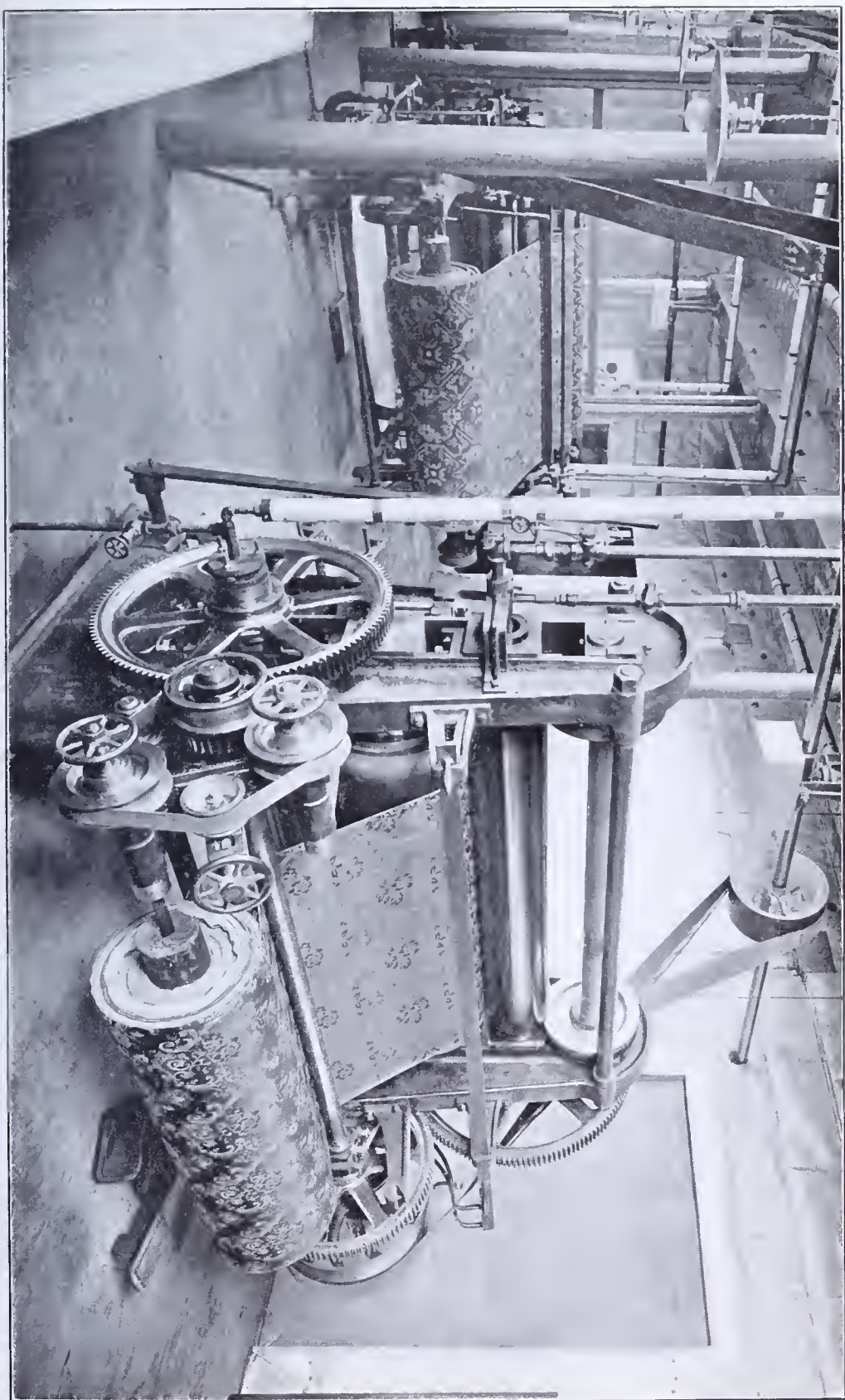
One of the oldest textile firms in and about Chester is that of S. A. Crozer & Son. The mill was founded in 1822 by John P. Crozer, Sr., who spun yarn near Leipers on Crum Creek and in 1832 started the present enterprise. Some years later it became John P. Crozer & Sons, changing to S. A. Crozer. In 1879, the final change was made and it became as at present, S. A. Crozer & Sons. The Crozers occupy about ten acres of land in Upland, on the suburbs of Chester, their mill being part five stories and part three; also having a three story mill in Chester on Edgemont avenue. Work is furnished in both mills to about three hundred and fifty hands, the output consisting of staple colored cotton goods for southern and western trade. The Crozer mills are equipped with modern machinery and much of their output finds its way to the West Indies and to South American countries.

The Chester Dyeing Company, Limited, has a capacity of from 8,000 to 10,000 pounds of finished product daily, and is equipped with modern machinery. Its business is to dye raw cotton, buying irregular and wet cotton, dyeing and reconditioning it. Considerable business is done outside of the State.

Chester has the distinction of a branch factory owned by one of the most eminent lace curtain firms in England—that of T. I. Birkin & Co. This mill was planted at Chester in 1897, and has been successful from its start. The weaving of lace curtains is done on modern English looms and the bleaching and finishing is also a part of the operations. Artesian water, pronounced chemically pure, is used for bleaching purposes and has given great satisfaction to the management. One hundred and fifty hands are employed, ranging in capacity from expert trained help from Nottingham, to the boys and girls of Chester origin. The Birkin industry is one of the most unique in the State and the processes of manufacture are exactly such as prevail in the leading mills of Nottingham, where the Messrs Birkin reside. They employ twelve machines and expect to increase their capacity fifty per cent. during the present year.

George C. Hetzel & Son are manufacturers of woolen goods and occupy a ground space 280 feet, their main building having four floors besides other one-story buildings for engines, dye-house, weave shed, etc. The Hetzels employ three hundred and fifty work-people and produce an output annually of something near \$1,000,000. Their weaves are chiefly staple woolen goods for men's wear.

Combined Finishing and Measuring Machine. View in a modern Upholstery Mill.



Pennsylvania at Large.

There is a seeming total of 36 mills outside of Philadelphia, in the State, producing manufactures of cotton goods, distributed as follows:

Cardington: One mill; yarns, 2,500 spindles.

Carlisle: Fly nets.

Cheltenham: One mill; chenille curtains, etc., 30 looms.

Chester: Twelve mills; lace curtains, dress goods, shirtings, yarns, etc., 78,866 spindles and 2,256 looms.

Clifton Heights: One mill; Turkish towels, terry cloths, etc., 160 looms.

Columbia: One mill; lace curtains, 15 looms.

Eden: One mill; piece goods, curtains, etc., 50 looms.

Glen Riddle: One mill; table damask, 5,304 spindles.

Hoboken: One mill; rope, twine, etc.

Hulmeville: Two mills; rope, twine, baircloth, etc., 40 looms.

Lancaster: Three mills, ticks, sheetings, awnings and coverlets, 24,280 spindles and 770 looms.

Lansdale: One mill; chenille curtains and table covers, 43 looms.

Norristown: One mill; weaving yarns, 9,000 spindles.

North Wales: One mill; webbing, 40 looms.

Reading: Two mills; batting, shirtings, twills, etc., 17,216 spindles and 412 looms.

Scranton: One mill; lace curtains, 15 looms.

Trainer: One mill; worsted, ticking, etc., 27,224 spindles and 157 looms.

Upland: Two mills; ginghams, shirtings, etc., 25,886 spindles and 1,125 looms.

Wellsville: One mill; fly nets.

Wilkes-Barre: Two mills; lace curtains, 27,000 spindles and 39 looms.

At a meeting of southern cotton spinners held in Charlotte, N. C., during the month of May, it was stated by Mr. Theodore C. Search, of Philadelphia, president of the National Association of Manufacturers, that the United States was consuming but thirty-two per cent. of the amount of raw cotton grown annually within its borders. This means, if true, that sixty-eight per cent, of the cotton grown in the United States is fabricated into cloths or yarns in other lands.

Mr. Search cited these figures on home consumption to demonstrate that a vast field of industry in cotton manufacture remained yet to be developed, and that having grown the cotton here, we might reasonably be expected to weave from it the cloths which countries not growing cotton must of necessity consume.

THE WOOLEN GOODS INDUSTRY OF PENNSYLVANIA.

By John R. Kendrick.

Wool is a term of wide application. While generally understood to mean the fleeces of sheep, of which there are many varieties, especially as looked at from a manufacturer's point of view, it also embraces the hair of the angora, cashmere and other goats and also the fleeces of the alpaca, vicuna and llama and the covering even of the camel, all these latter animals being generally related. The essential characteristic of wool as distinguished from hair, is its felting quality. This quality depends on the corrugations of the fibre. Along the course of the fibre there are scales or imbrications so that when a number of them are laid together and beaten, these projections of the fibre overlapping, engage one with another and thus make a compact and closely adhering texture.

In felts the fibres entering into it will not unravel and cannot be easily disengaged from their fabric. Neither do the fibres show any such way as to indicate any intervention of carding, spinning or weaving. A felt is simply a mechanically matted product, and its most familiar commercial forms are druggetts and other floor cloths, hats and coverings for boilers, for it is a very poor conductor of heat. It is also made up coarsely and by mixing with other materials into roofing (with coal tar) and sheathing for house walls, and has even been used to produce carriage linings, cloaks and other garments. It is also often beaten together with hair from cattle, raccoons, rabbits, beavers, enough wool being inter-mixed to secure felting. Probably this quality of wools resulted in its use for fabrics before men had learned to spin and weave, for it is mentioned by Homer and Hesiod. It has also long been known by nomadic Bedouins as a tent covering. In the later development of this industry there is a tradition that St. Clement, whom Roman Catholics put down as the fourth Pope and who died about the close of the first century, put some carded wool into his sandals in order to protect his feet while on a pilgrimage and at night found that the mixture and pressure of his feet had matted the wool into a firm and useful texture.

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It is also known that hair sufficiently beaten will break up into serrated fibres capable of entering into sheet felting and further, that the hair of negroes is a true wool which will mat together through its imbrications into a felt.

Felts are usually made now of waste wool products, and the processes of manufacture are very simple. The material is purged from all its fatty constituents, carded so as substantially to lay its fibres parallel, beaten in a machine while moist with hot water, deposited in an even layer on an endless belt, somewhat as paper is made, and rolled together under a heavy pressure. Various thicknesses are produced by laying one sheet upon another and beating and rolling them well together. If the fabric is to be used as a cloth, say for floor covers, the pattern is printed on as in calico printing.

Hats are moulded in halves and put together, the felting being amenable to building up, shaping, blocking, napping and other manipulations for the details of which this article can have no room.

Wool as a material of textile manufacturers has a history, the beginning of which is lost in obscurity. Its most primitive use was when men clothed themselves in pelts, as when we read in Genesis that "the Lord God made for Adam and his wife coats of skin and clothed them." But the art of spinning and weaving could not have been long delayed. The simplest implements recorded are the combed or carded distaff for holding the fibre, and the spindle for turning it into yarn. The fabric was then formed by knitting or plaiting. Perhaps a still more primitive fabric was felted cloth which is known to have been in very early use. When the wool was removed from the skin it was treated with some gummy substance and with heat, and probably not until long after was the conception formed of converting the wool into yarn. Yet spinning is of such remote origin that the ancients attributed it to the intervention of the Gods. The distaff is accredited to the son of a Lydian girl, Arachne, who lost her life in a spinning contest with Minerva. Exceedingly fine linens are unwrapped from the mummies of Egypt. With very simple implements men produced textile fabrics for centuries. The spinning wheel was not known until early in the sixteenth century, and the flying shuttle followed two hundred years later. The complicated and ingenious mechanisms that center into the modern manufacture of cloth are of comparatively recent origin. As Hargreave's spinning jenny, which revolutionized textile industries was not invented until 1767, and the spinning of combed and carded wools or worsteds belongs almost wholly to the nineteenth century. Wool is characterized by its imbricated or serrated structure, and these serrations lie in the direction of the growth of the fibre, so that if the wool be drawn between the thumb and finger from the root outward it will seem quite smooth, and slip easily, but if it be drawn

in the opposite direction it will feel rough and harsh. Again, it is distinguished from hair by its curliness and its fineness and softness. These are the qualities which confer upon it its felting property. Wools are classified, not only by the animals that produce them, as the llama, the angora goat, the alpaca, the sheep and the camel, but by the length of their staple, by the parts of the body from which the fleece is shorn and by the breed. The finest wool of the sheep is clipped from the shoulders and sides of the animal. The product from the fore part of the back is of uneven growth and apt to contain many burrs. As the clipper proceeds down the back the wool is shorter and coarser. The product taken from the belly is quite short and dirty, and so is that to which grows on the breast and throat. That which comes from the head and legs is short and harsh and has a greater resemblance to hair. It is the business of the wool sorter to separate the fleeces according to the quality of the wool. He lays the fleece on a frame of wire netting through which the dirt sifts, as he proceeds. If the wool be very dirty and matted it must be heated in order to soften the grease that adheres to the fibre. He now divides the fleece into two equal parts and removes from them by hand the visible burrs, the straws and other impurities, and then separates the wool into heaps according to its qualities. Much depends upon his skill which is acquired by long experience. In unwashed merinoes only about one-third of the weight is pure wool, but in washed merinoes the proportion of pure fibre will rise to half or three-quarters of the weight.

The wools are sorted according to their cleanliness. The cleanest wools come from Great Britain and after them, come in the following order, German, French, Australian, Spanish, African, Asiatic and South American. In the United States much depends on the way the flocks are handled. The pastures of Pennsylvania and Ohio producing fibre superior to the ranches of New Mexico or other western plains. There are no sheep of native origin in the United States. They were first imported into Jamestown, Va., in 1609, and twenty-four years later they were introduced into Boston, Mass., from Great Britain. The merino breed was brought into Spain, probably from Algiers by the Romans and thence in the latter half of the eighteenth century they were introduced into Saxony, Silesia, Hungary, Great Britain and France. For a long time the Spanish wools held the pre-eminence in Europe. A large flock of merinoes were sent into the United States in 1802, through the enterprise of our American minister at Madrid, while some forty years later fresh importations arrived in Connecticut. By cross breeding the European flocks have been greatly improved, while the Algerine sheep have deteriorated from neglect. The merino sheep are well developed though smaller and less hardy than the heavy native breeds

of Great Britain and France. Their fleeces are fine, strong and curly. They are of a comparatively short staple and the finest wool is clipped from the shoulders and sides. The Algerine wools are of a fair quality but reach the market matted with burrs and sand. These wools are heavy and dry. The merino fleeces are of a dull grey color while in the grease, but turn a lustrous white on being scoured. Breeds raised by crossing merino with native stocks are known as metis or half-breeds. They weigh from thirty-five to forty-seven pounds and their washed fleeces yield about two pounds of pure wool. Great Britain long enjoyed the reputation of producing excellent and long stapled wools, and by jealous and restrictive legislation sought to nurture her whole woolen industry. Her fibres were in great demand in Flanders and the Netherlands. By careful attention she has greatly modified her domestic breeds, for example the Southdowns which originally ran wild over the hills, had black fleeces and horns, were ill formed with sharp backs long thin necks and thin fore-quarters now produce the finest long stapled white wool in the realm. They are easily fattened, yield an excellent mutton, have increased the weight of their bodies more than four fold and have doubled that of their fleeces. A broad classification of sheep is into low land and highland varieties. The highland breeds under which the merinoes must be included are small, weighing about forty pounds, and yielding about four pounds of fleece in the grease. Their wool is short stapled. They are found in the south of France.

In the north of France the sheep will weigh from seventy to 110 pounds, and will yield a fleece weighing from four and one-half to eleven pounds, but they are not so heavy as the long-stapled animals of the United Kingdom or Holland or Hungary.

Of the British wool the Southdowns are of high quality. They are fitted for either woolen or worsted yarns and though classed as of short staple they stand the processes of manufacture well. Of the long wools those grown in Lincoln and Leicester are the most important. It is from these breeds and the merino that the large flocks of the Australian Colonies are derived. The product of these colonies exceeding in 1899, that of all other countries except Great Britain. Other varieties of British wool are grown in Yorkshire, in the Cheviot hills, in Staffordshire and Norfolk; also in Wales where it enters into the manufacture of excellent flannels and Shetland wool distinguished for its fineness and softness and for its special adaptation to knitted work.

Turkish wools are of poor and uneven quality and contain very large burrs. Argentina supplies the market with nearly as great an output as all of North America, but its fleeces reach the market in an unwashed state, filled with burrs and dirt. Scotland produces

a wool from a black-faced sheep used in the manufacture of carpets. Its fibres are long and uneven in character, and its qualities are impaired by the practice of rubbing sheep with tar and fat after the fleece has been removed in order to protect the animals from cold. Russia including Poland ranks as the second country in the world in its output of wool. There are a number of varieties, those coming from Poland being very fine. Russia also produces a heavy wool having the characteristics of goats hair. One of the principal industries of South Africa is grazing sheep and its total production south of the Vaal river is three times as great as that of all the rest of Africa, but the fleeces are exported unwashed. Indeed wools are grown in all parts of the world, but the principal sources of supply have already been enumerated. The world's total product in 1899, as estimated by the National Association of Wool Manufacturers was 2,681,819,545 pounds, of which the United States supplied a little more than one-tenth. In the same year there were 39,114,453 sheep in this country, valued at on average of \$2.75 a piece, that being the highest rate obtained for them in four years. In addition the imports for the same year were 76,736,200 pounds. The total exports of domestic and foreign wools for the year was 14,095,335 pounds, showing that nearly all our supply was manufactured in this country, thus making the woolen industries of the United States practically independent of all other countries. The largest consumption of wool was in 1897, while the Wilson tariff was still in force in the United States. This maximum was reached on the eve of the passage of the Dingley tariff, when our merchants' and manufacturers' laid in a large supply in anticipation of higher prices. The proportion of imported wools in that year was 57 8-10 per cent., of the total supply, a ratio not exceeded in thirty years. In 1899, the ratio of imports had sunk to 19 2-10 per cent., although six years before under the first Dingley tariff it sank to 15.6 per cent. The total supply of wool in the country including domestic production and imports was slightly in excess of 610,000,000 pounds.

The Woolen Goods Industry of Pennsylvania.

Exhaustive facts respecting the manufacture of woolen carpets and the spinning of woolen and worsted yarns having appeared in recent annual reports from this office, it is designed within a few pages of the present report to indicate the progress made in the fabrication of cloths for clothing purposes, woolen blankets and also of fabrics for decorative purposes into which wool enters as a chief component part.

That the strides of the wool-weaving industry of Pennsylvania may be the better understood, a glance both at pre and post-colonial

experiments can hardly fail to interest the general reader. Fortunately for the early settlers of New England and of states to the westward, including Pennsylvania, the fabrication of cloth for clothing purposes was not dependent upon mechanical invention. From the earliest ages in fact, and in all countries, however primitive the people, the capacity to manipulate sheep's wool and to convert the same into coverings for the human body has been intuitive in the brain of both men and women; especially the latter. It is quite within the memory of aged persons now living, to recall the preparation of yarns on the spinning wheel of our forefathers and its subsequent evolution into cloth through the aid of hand-made and hand-propelled wooden looms. Fortunately for the "embattled" farmers



The Jersey Wheel, used for spinning Cotton and Wool in the old domestic economy of the United States and England.

of the American Colonies, their wives and mothers knew how both to spin and to weave and the horrors of the seven years' war with Great Britain were greatly mitigated and final success largely assured through this unfailing aid to General Washington's commissariat.

The first systematic colonial effort to manufacture woollen cloth after the then best known methods, had its origin in the village of Rowley, Mass., in the year 1638. This town was about midway between Ipswich and Newbury and a little colony of Yorkshiremen,

comprising some twenty families of "industrious and pious people" constituted the working contingent. These were under the guidance of the Rev. Ezekiel Rogers, one of the proscribed non-conforming ministers of England and a descendant of the first Protestant martyr, John Rogers, who perished at Smithfield, England, in the reign of Queen Mary. The town of Rowley was incorporated in 1639, and the families referred to commenced soon after the manufacture of cloth which had been the occupation of many of them in England.

At Rowley, according to the best accounts, was built the first fulling-mill erected in the American Colonies. This mill was constructed by one John Pearson about the year 1643. Its site was just above the head of the tide on Mill river where it was still in operation in 1809. Flax, hemp and cotton had previously been wrought into cloth but whether by the weavers of Rowley or in families generally under the stimulus of the bounty laws previously passed, is not wholly clear.

A pamphlet entitled "New England's First Fruits" printed in Boston, September, 1642, speaks of their providential help among other things in prospering the hemp, flax, linen and cotton industries, all of which were of course conducted on primitive lines and yielding an output which quickly disappeared through the consumption of the families producing the cloths.

The achievement of the Rev. Rogers' little colony of weavers must be understood to imply the first manufacture of fulled and dressed cloth or cloth wholly of wool, of which none was previously made, the



The Distaff of Antiquity.

cloth product made prior to Rogers' in the homesteads of Massachusetts consisting evidently of fabrics of mixed fibres, cotton being

one of them. The woolen industry to which the Rowley people were bred in England, was at the time of their hegira probably the most important branch of English products—that of broadcloth manufacture. This branch of weaving had long existed and had been nourished by numerous statutes having relation to both import and export trade. As early as 1261, the export of wool and the wearing of foreign-made woollens were prohibited by law. A century later, however, English wool was the best in Europe and formed fourteen-fifteenths of the entire exports of the Kingdom. Edward III. gave quite an impulse to woolen manufacture in England when in 1331, he invited over weavers, dyers and fullers from Flanders. In 1332, a fulling mill and a mill for dyers existed at Manchester, though for a long time thereafter, woollens were sent across the channel to be dyed and dressed. In the reign of Elizabeth, many skillful artisans fled from the low countries to England where they received a hearty welcome and some oppressive statutes were modified to favor them. It was in the Elizabethian period therefore that the woolen manufacture of England first became really important.

The American Revolution was undoubtedly depressing to woolen manufacture as it was to all other industries which thrive best in peaceful times. The Continental troops were constantly short of seasonable clothing and Philadelphia was twice called on to furnish blankets which could not be purchased in our stores.

In 1775, we find Samuel Wetherill, Jr., of Philadelphia, engaged in fabricating woolen cloths in South alley between Market and Arch, and Fifth and Sixth streets. About this time (May, 1775), he addressed a letter to the "Board of War," as it was termed, in which he stated that in consequence of the rise in the price of wool, he would be unable to carry out his contract for the supply of army cloth. When Mr. Wetherill contracted with the Government, wool was ruling at 7s. 6d. per pound. It advanced up to 10s. and 6d., causing the contractor to ask Congress to allow him 27s. 6d. per yard. These prices were based upon Colonial currency and as the Treasury was empty Mr. Wetherill's petition for a better price can readily be understood.

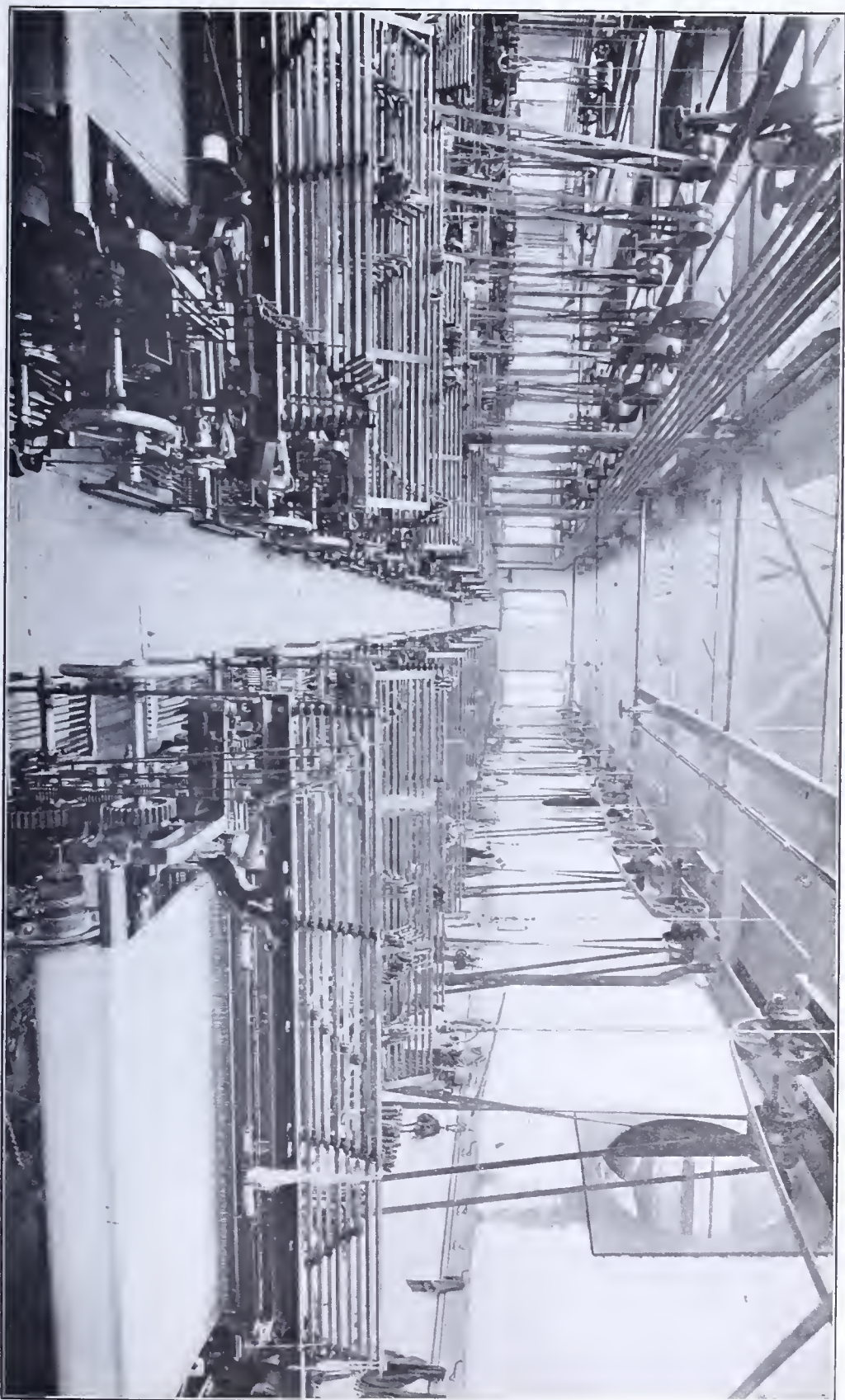
The stimulus given to manufacture by the seven years' War of the Revolution naturally called for the best machinery then in use abroad. Hargreaves' spinning jenny, elsewhere alluded to and illustrated, and Samuel Crompton's self-actor spinning mule, were not unfamiliar in the industrial circles of the young republic. Philadelphia was specially alert to the importance of these discoveries and the application of Watts' steam engine to the spinning and carding processes at Manchester were much talked of. The seizure in England, in 1786, of a set of brass models of Arkwright's machinery intended for Mr. Tench Coxe, of Philadelphia, is alluded to in the report on the cotton industry, found elsewhere in this volume.

"In 1784, fulling mills were very numerous throughout Pennsylvania, and so great was the demand for spinning-wheel irons that from one shop in Philadelphia, in 1790, there were sold fifteen hundred sets, an increase of twenty per cent. over the pervious year." In 1792-94, we find it recorded that a number of carding machines for cotton and wool were constructed, as were also eight spinning frames on the Arkwright principle and several mules of 120 spindles were erected at what was known as the Globe Mills in the Northern Liberties.

As further illustrating Pennsylvania enterprise, it is worthy of note that Samuel Slater, the pioneer American cotton manufacturer was induced to emigrate to America by having seen in a newspaper that one hundred pounds had been granted by the Legislature of Pennsylvania to one John Hague for introducing a machine for carding cotton and the establishment of a society with legislative encouragement for manufactures. The Philadelphia Society was incorporated March 2, 1805, with a capital stock of \$10,000, with shares at \$50, and with power to increase the capital to \$100,000. The company's warehouse was at 11 South Third street, and Paul Coxe was president. The directors of the company were empowered to make advances upon American manufactures, especially those of wool, cotton or linen to the amount of half the value of the articles when deposited in the warehouse, and to pay the residue when sold, deducting interest and a commission of five per cent. When this society started it was discovered that five hundred weavers were out of employment and that they were seeking other avocations. The record is that through this society all found employment. During the first six years dividends were made of secondary importance, but they did reach sometimes as high as eight per cent.

In 1810, there were three woolen mills and sundry smaller ones established in Philadelphia and one at Germantown. A mixed weave called Cassinets (wool and cotton) was made in the Philadelphia mill and broadcloth of merino wool was woven in Germantown.

The scarcity and high price of woolen goods about 1809-10, caused by sundry restrictions upon trade, turned public attention to sheep husbandry. Dr. Mease and Thomas Buckley, of Philadelphia, became active members of the Merino Society, organized in the Middle States, and at the auction that year in Philadelphia, sheep of that breed sold for from \$250 to \$300 each; a lot of twenty-five sold for \$5,900; another lot of thirty-three ewes sold for \$250 each and bucks for \$350 each. Following this interest in sheep rearing, a number of patents were issued in 1812, bearing on the process of manufacture including wool, cotton, flax and hemp. The Rev. Burgess Allison's portable family spinning machine has been referred to in the accompanying sketch on cotton manufacture. It drove from ten to



Perspective in Wave Room showing modern Broad Looms for Fancy Fabrics.

fifteen spindles and occupied very little more space than the common spinning wheel.

In those days every Pennsylvania farmer of the right sort kept a flock of sheep and woolen cloth was the chief textile for family wear. Of course it had to be carded, spun and woven at home and it was then made into garments for both men and women. The best cloths for the men and boys were made of what was called "fulled cloth." The materials were enduring and honest and when made by the simple domestic processes, it was taken to the fulling mills where it was subjected to a process of thickening, dyeing and finishing. The women of Pennsylvania used to wear gowns of cloth which was called "pressed" woolen. This was simply home-made flannel taken to the fulling mills from which it emerged with a glossy surface very taking to the eye.

A considerable business was done by traveling tailors who traveled each with a goose from house to house to make up the cloths for the men and boys or else cut and fit them for the women to complete.

The period following the war of 1812, and the peace of 1815, seems to have been an unprofitable one and woolen manufacture sunk to a low ebb. Nothing could demonstrate this more surely than does a report of the committee of citizens, October, 1818. From this we learn that the number of hands employed in woolen manufactures in Philadelphia had diminished from 1,226 to 260.

Under the leadership of Matthew Carey, of Philadelphia, and the Philadelphia Society for the Promotion of National Industry, the need of a protective tariff was widely agitated and by the act of 1824, duties on wollen goods were increased from twenty-five to thirty-three per cent. It appears, however, that the infant republic was still dependent on imported wools and the advocates of low duties on these got the tax rates reduced from 6d. per pound to 1d., thus enabling the British manufacturer of such goods to undersell the American manufacturer in the markets of this country. The failure of the Woolens bill of 1827, was followed by the Harrisburg Convention of July 30. At this time we find from Hazard's Register of Pennsylvania that there were in Philadelphia and its vicinity in 1827, 104 warping mills at work, sufficient to employ 4,500 hands, over 200 dyers, 3,000 spoolers and 2,000 bobbin winders. Weavers, dyers and warpers averaged \$5.00 per week wages; spoolers fifty cents to \$1.50 and bobbin winders \$1.00 and found. In 1827, also Wm. Divine, son of the Irish linen Manufacturer, emigrated to Philadelphia and immediately commenced work on the hand loom. He was a shrewd man and having been promoted to a broadcloth loom in the Penn factory, in the next eleven years his industry and economy enabled him to start in business with one set of woolen machines, in a mill on

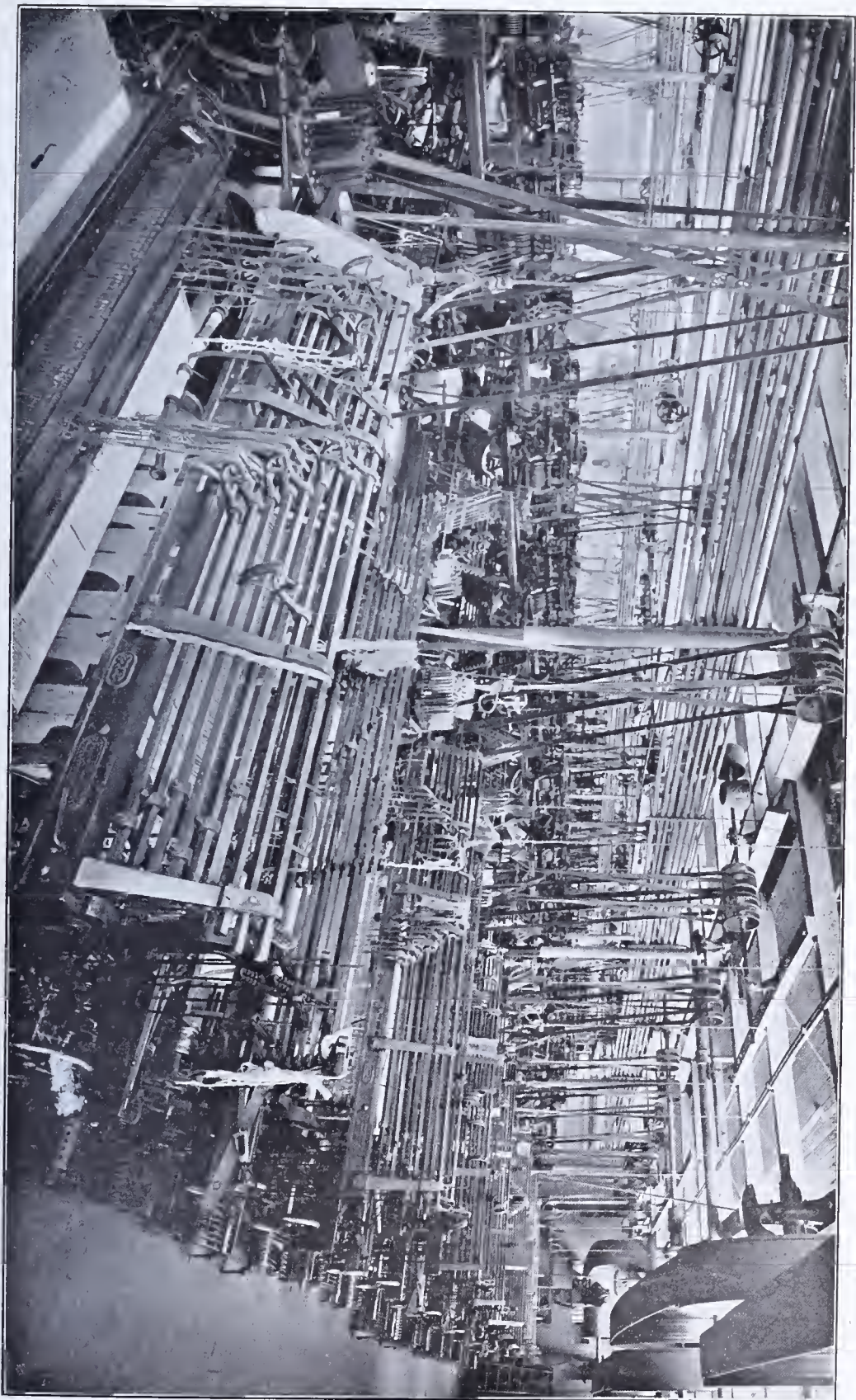
Pine street near Twentieth, where he manufactured Kentucky jeans. The Kennebec factory was built by him in 1841, on Naudian street near Twenty-first, and in 1846, he purchased the Penn factory and added cotton weaving to his other industry. Mr. Divine proved a very valuable factor in both the woolen and cotton industries; he was an improver of machinery and was later made president of the Association of Manufacturers of Textile Fabrics in Philadelphia.

The annals of Conshohocken, a picturesque suburb of Philadelphia ten miles up the Schuylkill river, has much in them of interest concerning the woolen industry. Benjamin Bullock, long prominent at this point, was born at Yeadon near Bradford, England, in 1796, emigrating to this country when he was nineteen years old. His first business in wool here was that of a comber in the establishment of Henry Korn. In 1822, having collected some capital, he joined himself to Anthony Davis under the firm name of Bullock & Davis in the wool pulling business on Front street above Poplar. In the next year he removed to 32 North Third street, Philadelphia, where he remained for nearly thirty-seven years. In 1837, Mr. Bullock, embarked in the manufacture of woolen goods in the Spruce street factory which was afterward owned by Wm. Devine, then foreman in the mill. Subsequently Mr. Bullock purchased the Franklin mill on Haydock street, near Front, and at a later period bought from Bethuel Moore the Conshohocken mill which is historically credited with being the first woolen mill to be started in the State of Pennsylvania. During the American Civil War, 1861-65, Mr. Bullock's sons had in operation thirteen factories making blankets and blue army kerseys in which 3,000 persons were employed.

Another English born man who seems to have brought fame to Philadelphia as a manufacturing point was Thomas Drake, who was born at Leeds, April 9, 1807, coming to the United States in 1828, with his parents. His father John Drake, was a maker of woolen goods at Manayunk up to the year 1846. Thomas Drake worked in his youth in a factory at Blackwood, N. J., where was made as claimed, the first lot of the goods called Kentucky woolen jeans. Leaving this place for Philadelphia, he was employed by Richard Whitley, at Rock Hill, and by others until 1837, when he set up business under the name of T. Drake & Co., his partners being James Drake (his brother), George Sutton and Wm. Flynn. They made woolen jeans and similar weaves in their factory at Manayunk.

In 1838, this firm was dissolved and Thomas and James Drake began business for themselves on Pine street near Third. James Drake retired in 1840, and Thomas remained in that locality until 1841, when he built a brick mill at Twenty-third and Naudian streets. This factory had seventy woolen looms and six sets of woolen cards.

In 1845, Thomas Drake, built a cotton mill at the corner of Twenty-



View of modern Plant for the weaving of Worsted Cloths :-

from Fifty to Sixty Inches.

first and Pine streets with twenty-four looms and 10,000 spindles. Here he made large quantities of print cloths which had previously been a specialty of the New England mills. In 1861, Mr. Drake retired from business in the enjoyment of a large fortune.

In 1820, Charles V. Hagner erected a mill on the Schuylkill for the grinding of drugs in making oil, shortly afterwards adding a fulling mill.

Alfred Jenks, of Bridesburg, made him a number of power looms for weaving satinetts. These were the first power looms, according to the best accounts, used in the manufacture of woolen goods in the State of Pennsylvania. Hagner continued to operate the mills until 1839, when they were purchased by Joseph Winpenny who converted the mills into a woolen factory. In 1840, the mill had three sets of machines making broadcloth and kerseys and employing some fifty hands, producing a thousand yards of goods per week. These mills changed hands several times and when the Civil War broke out were making both woolen and cotton goods, the firm being Preston & Winpenny.

Among the noted mills of Philadelphia were the original Pekin Mills erected by Moses Hay who worked them until 1836, when they were sold to Joseph Solms. He ran these mills until his death in 1852, when they became the property of Sidney I. Solms, who raised the mill to five stories in height and in 1862, erected a new mill with engine house, picker, dyeing and drying house. These mills contained in 1884, fourteen complete sets of woolen machinery with 256 looms and all needful appliances for preparing and finishing.

In 1840, William Hammill, established the Washington Woolen Mills. These were bought in 1858, by David McConkey; in 1859, by Perry M. Hunter, who enlarged them and in 1864, sold an interest to Samuel DeHaven. They were operated by Hunter and DeHaven until November, 1864, when they were bought by John D. Bishop, passing later into the ownership of William Watt.

In 1842, the Glen Riddle Mills were founded by Samuel Riddle for the manufacture of woolen and cotton goods. The woolen product was chiefly Kentucky jeans—that of cotton being ticking stripes, cottonades, canton flannels, brown drills and kindred goods.

The Coming of the Spinning Jenny.

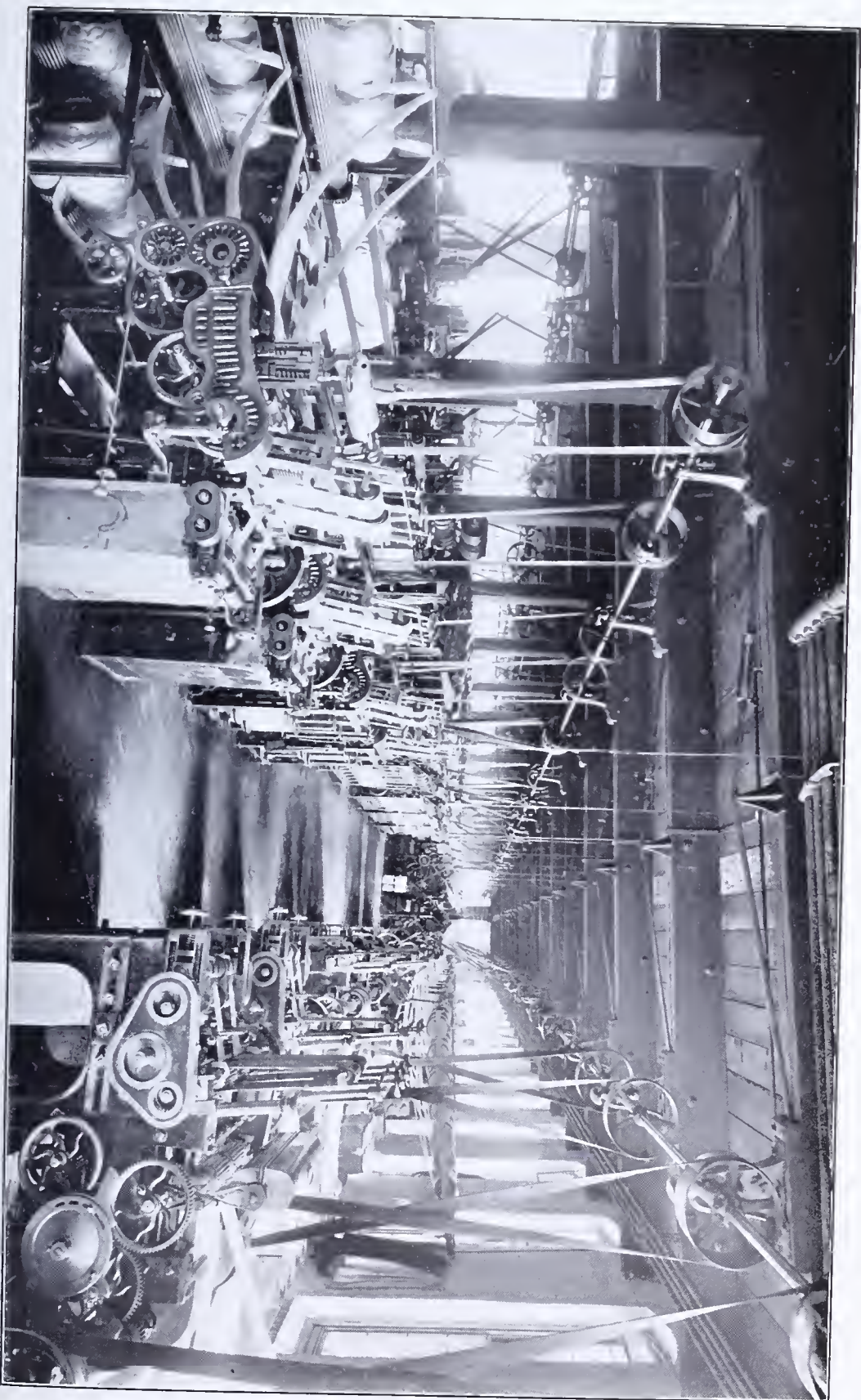
Whatever success inventors may have had in perfecting a method of spinning woolen yarns, it is certain that the ancient distaff and spindle which were manipulated by the human hand were actively used in England up to the time of Hargreaves, the earliest mention of whom we find in records of the year 1762. The one-thread wheel had preceded this device and its use became general as an adjunct to

home industry toward the end of the fifteenth or the beginning of the sixteenth century. The hand wheel process took firm hold and so effective was its working that it has never yet disappeared. In remote sections of Pennsylvania there are spinning wheels no doubt now in use as there are in the Western and Southwestern States.

With the advent of the Hargreaves jenny, machine spinning may be said really to commence, and though it is called a hand jenny, it was to all intents and purposes a machine, as its size was only limited by the ability of human strength to work it.

In 1762, Hargreaves seems to have been in the employ of Robert Peel, of Blackburn, the founder of the famous English family of that name. He helped to erect a carding machine for Mr. Robert Peel, which machine was the production of Lewis Paul, of Birmingham. He was also a partner of John Wyatt, who comes down to us as the inventor of spinning by roller, the latter being patented in 1738, and fully described in Baines's History of the Cotton Manufacture. Wyatt seemed unable to get the mechanical details of his machine fitted with such exactness as to ensure perfect working. The result of this was that his invention lay dormant until Arkwright heard of the principle of spinning by rollers, and grasping the idea made it the basis of his renowned water spinning frame. When Paul and Wyatt's establishment broke up, Paul's invention of the revolving cylinder for the carding of cotton was bought by a hatter of Leominster and was applied by him to the carding of wool for hats. This machine was introduced into Lancashire about 1760, and attracted the notice of the first Robert Peel, who took his brother-in-law and Mr. Haworth into partnership along with William Yates. The latter's daughter became the wife of the second Robert Peel, the mother of the great statesman, and hence was formed the noted firm of Haworth, Peel & Yates about 1750. The first Robert Peel was a keen observer and tried Paul's revolving cylinder carding machine and found Hargreaves to be a useful man in putting his ideas and suggestions into shape. But even in such hands as these, the records show that little progress was made until Arkwright's clever faculty of putting into ship-shape the produce of other people's brains, again came into play. Arkwright laid hold of the revolving cylinder and used it effectually in the manufacture of cotton.

About this time Kaye's invention of the fly-shuttle gave an impetus to weaving and greatly increased the production of the loom, thereby causing a great shortage in the supply of yarn as compared with the demand from the weaving industries. Some half a dozen or more schemes were conceived to meet the difficulty that arose from 1760 to 1767, but without much practical result. Hargreaves heard much of this scarcity, being then a weaver at Standhill, but being a ready-handed man, could do a little carpentry or mechanical work.



WORSTED DRAWING—Bradford System.

The scarcity of yarn, however, and the lack of employment for his fellow work people, made him very thoughtful, and to invent a machine which should lift the spinning industry out of its troubles, became his one absorbing study. At last, after long and strenuous thought, his genius laid the way to the construction of the spinning jenny in 1764 to 1767. With Wyatt's roller spinning idea it had not the slightest connection, the basic principle of the jenny being quite opposite to Wyatt's principle. The jenny, in fact, was a purely original invention and may be called a machine application of the original principle of spinning, whereas Wyatt's roller and Arkwright's water frame were not only new machines, but embodied a new principle of spinning altogether. Hargreaves' jenny produced yarn for the first time on a large scale on the old principle, whereas Wyatt and Arkwright's was an entirely new principle. Hargreaves is supposed to have invented his jenny about 1764, using it at first only to supply himself and his family with weft, the warp at that time and in that section being usually linen, as the district produced strong printing cloths. The jenny had certainly been brought to completion in 1767, and its existence could no longer be kept secret. With publicity came danger to the inventor. Kaye, the inventor of the fly-shuttle, realized this and trembled for his life. The working class of Blackburn knew little of political economy and only saw the immediate effect of increased production of yarn on wages and not the ultimate effect of increased employment. A mob finally gathered and broke into the inventor's house, destroyed his jenny and gave him to understand that he must remain in the neighborhood at the risk of his life; so Hargreaves had to fly to Nottingham.

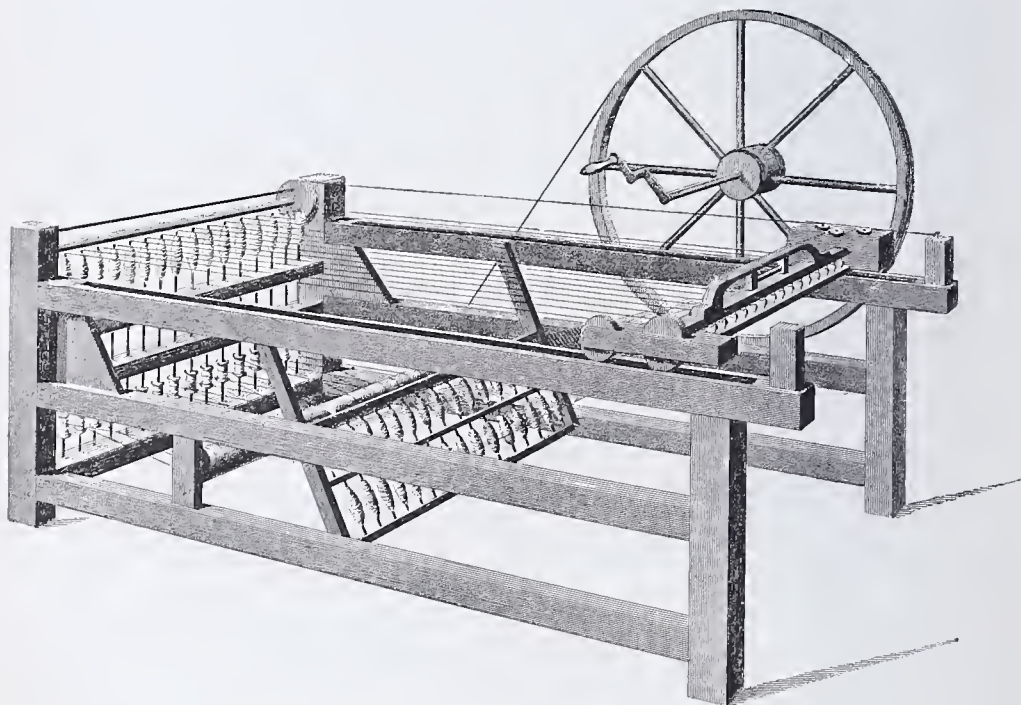
Prior to the Hargreaves jenny, it took three to six spinners on the one thread wheel to keep one weaver going, so that the jenny only came into being in response to an urgent demand. Meanwhile Arkwright had matured his roller spinning water frame, and enrolled the specification of his first patent in 1769. Like his forerunners in that great era of invention, he too had been compelled to seek safety in flight. It follows from these facts that without the pioneer Hargreaves, there might have been no Arkwright and there could have been no room for a Crompton. When Arkwright's first patent expired in 1784, there were in England 1,600,000 Hargreaves jenny spindles at work, and therefore "to Hargreaves belongs the honor of being the first inventor of a machine by which one individual could spin the fleecy and fibrous substances of the animal and vegetable kingdoms into a plurality of threads at the same time, and by one operation."

Within two years of the invention of the Hargreaves jenny we had Arkwright's water frame and we reach a very important period in the history of modern spinning at which the road parts into two,

The perfecting of Wyatt's roller spinning frame by Arkwright introduced into the textile industries a completely new mode of spinning that had not to any degree been in use before. All our textile threads up to the point at which the Arkwright frame appears, had been produced on one and the same principle, the original principle of drawing and twisting at one and the same time, of distaff and spindle and the one-thread wheel; this was continued and extended in the Hargreaves jenny. The Arkwright frame brings into view a new principle of spinning and converts the spinning of cotton, worsted, flax, hemp, jute, mohair, alpaca, spun silk, and indeed every other non-covering yarn that can be named, whether composed of vegetable or animal material, into two distinct and separate simple processes which follow each other continuously.

It would be interesting to trace the growth of the spinning industry from these pioneer machines of Hargreaves, Arkwright and Kaye's period and to note their development into the present wonderful combing, carding and drawing machines which produce the yarns of the present day.

This, however, does not come within the purview of this article which designs to treat chiefly of the weaving branch of the woolen industry. After indicating briefly as has been done the genesis of



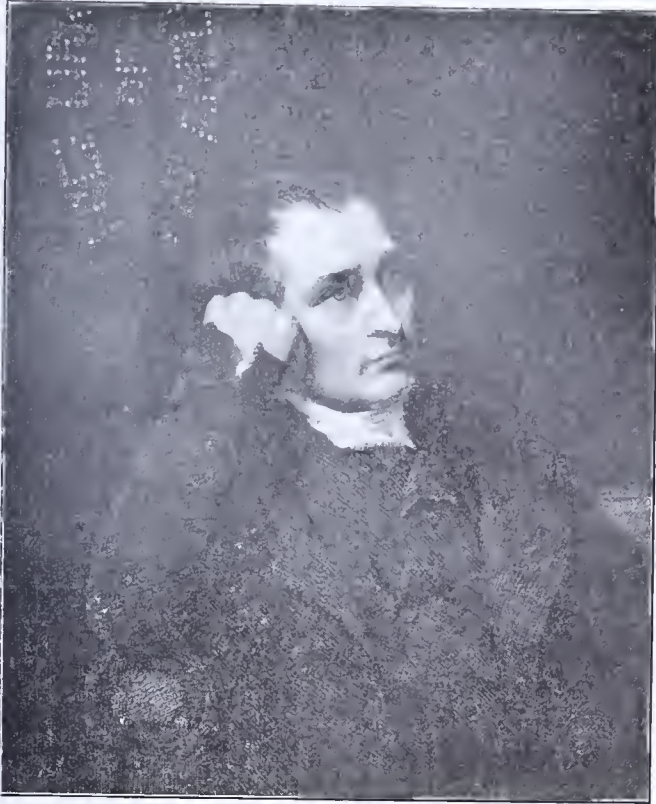
Hargreaves' Spinning Jenny. Invented 1764.

power spinning, we must refer those interested to the many published works, both English and American, relating specially to woolen and cotton spinning. No narrative, however, relating to the fabrication

of woollens can be considered complete that fails of some brief mention of men who were compelled to flee for their lives because they had seen fit to give their fellow men the benefit of their discoveries.

Did space permit we might dwell upon the self-actor mule which took partial shape in the brain of Samuel Crompton, and was ultimately made self-acting by Richard Roberts, of Manchester. His quadrant winding motion has justly been styled one of the most ingenious mechanical movements that the world had even seen.

Mr. Richard Marsden in his work on cotton spinning says, "the



SAMUEL CROMPTON

Saml Crompton.

first self-acting mule was one of the greatest triumphs of mechanical genius that has ever been achieved and as a display of the power of the inventive faculty in man's nature, surpassed anything accomplished up to that time." This statement hardly requires even that limited qualification, as, though great advances have since been made in many branches of mechanical industry, nothing yet surpassed the spinning mule in the number and variability of its various actions, the admirable concert of its parts or the excellent results achieved by it.

See "Worsted Yarn Manufacture in Pennsylvania," Annual Report Bureau of Statistics, Part III, 1888.

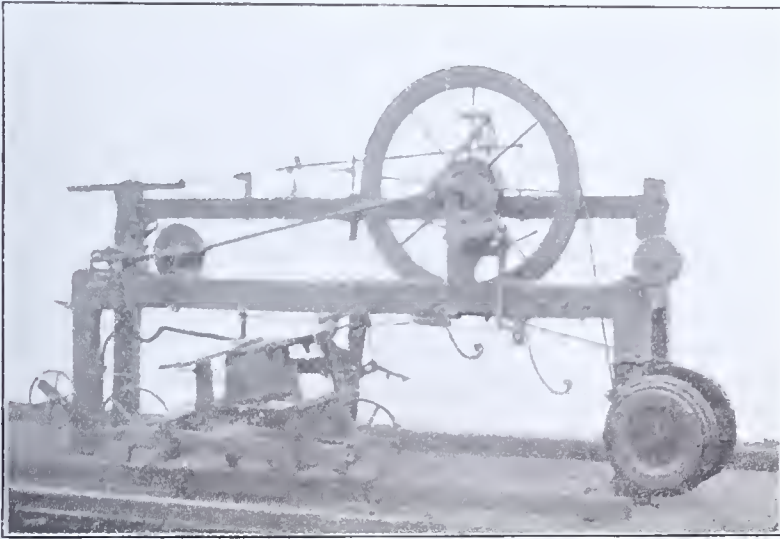
During the preparation of this report, there has died at a great age (May, 1900), in England, a remarkable woman, Miss Frederica Elizabeth Perceval, whose father, the Right Hon. Spencer Perceval, Prime Minister of England from 1809 to 1812, had a somewhat pathetic connection with Mr. Crompton's invention of the spinning mule. Miss Perceval, herself, was born in September, 1805, and was, therefore, nearly ninety-five years of age when she died.

Spencer Perceval, father of the aged lady whose death was recently announced, was the second son of the second Earl of Egmont and was born in London, November, 1762. He entered Parliament in 1796, and distinguished himself by his speeches in support of the administration of Pitt. In 1801, he became Solicitor-General, and in the following year Attorney-General. On the overthrow of the Grenville administration he became Chancellor of the Exchequer under the Duke of Portland, whom he succeeded in the Premiership in 1809. While Perceval was conservative in his ideas, he was, nevertheless, a vigorous and able debater and seems to have interested himself in industrial matters.

It was in May, 1812, that a movement was made in the House of Commons looking to a handsome Parliamentary grant to Samuel Crompton, whose spinning mule as elsewhere noted, had quite revolutionized the cotton industry of England. On the evening of May 11, as Mr. Perceval entered the lobby of the House of Commons, he stopped for a few minutes to discuss with some members the proposed grant to Mr. Crompton. As he did so, a man concealed behind the door, fired at him with a pistol and the Premier staggered forward, uttered a slight exclamation and fell to the ground with a mortal wound. Being apprehended, the assassin proved to be one, John Bellingham, an Englishman who had been engaged in mercantile business in Russia and had been led to commit the act by a morbid sense of personal wrongs. It seems that he had sustained some financial losses in his dealings in Russia and had sought redress from the British Government. As his demands for government aid were not successful, Bellingham became morbid and his mind gave way under his misfortunes. It was in this condition that he determined to slay the Prime Minister of England, and thus gratify his revengeful feelings. He was duly placed on trial for the murder of the Premier and delivered in court a long and perfectly rational address setting forth the wrongs he claimed to have suffered at the hands of the British Consul and Ambassador to Russia. He refused to plead insanity and there was no trace of mania in his words or bearing; therefore the jury convicted him and he went to the gallows a week afterwards. During his trial he had exclaimed: "Sooner than suffer what I have suffered for the last eight years, I should consider five hundred deaths, if it were possible for human nature to

endure them, far more to be preferred." Bellingham was about forty-two years of age and left his young wife and her infant child in St. Petersburg, waiting to be called to England when he had secured the redress which he sought.

The irony of fate worked bitterly against Samuel Crompton, the inventor, through the death of the English Premier. The latter, whom his contemporaries regarded as a common-place and unpopular minister, was voted an annual pension of £2,000 to his widow for life and granted the lump sum of £50,000 (\$250,000) to his children. Poor Crompton's pension seems to have been lost sight of when this tragedy occurred and he died absolutely penniless.



The Crompton Mule—1779.

Conditions in 1890.

It is conceded by expert authorities in textile matters that official returns, both State and Federal, were so fragmentary prior to 1840 that it is impossible to reduce to tabular form statistics gathered prior to 1840, with sufficient accuracy to make them harmonize with statistics of later date. Such returns as were made to the Government prior to 1840 concerning wool and cotton were uniformly vague and the machinery provided by Government for collating mill statistics was poorly calculated to obtain lucid results.

The many divisions and sub-divisions, moreover, of textile manufacture and the frequent fabrication both of woollen goods and cotton goods under one roof gave great perplexity to statisticians, as it does at the present time when effort is made to tabulate separately the output of woollen and cotton machinery.

In his luminous report on woollen manufacture for the census of

1890, Mr. S. N. D. North, referred to the fact that previous censuses had failed to include the statistics of hosiery and knit goods manufacture, although such fabrics had been heavy consumers of wool and worsted yarns. Latterly, however, with the great improvement in the spinning of cotton yarns, hosiery and knit goods occupy a distinct place in the cotton industry, and this notwithstanding the fact that the value of the wool consumed in these products remains greater than that of cotton, though in actual quantities cotton vastly exceeds that of wool. To quote Mr. North exactly on this particular point, he says:

"The confusion that has existed in consequence of the failure of previous census reports to properly group all these figures, has led to many errors in attempts to measure the statistical growth of the American wool manufacture on the basis of census figures; errors due to the omission in one year or another, of one of another of the separate groups of figures essential to a complete comparison."

The returns of 1890, showed that public, penal and charitable institutions were considerable consumers of woolen yarns in the various attempts at weaving maintained in such institutions. As illustrative of this, we may state that Pennsylvania disclosed the largest and most valuable output from mills of a public character.

Wool Manufacture—Statement of Public, Penal and Eleemosynary Institutions.

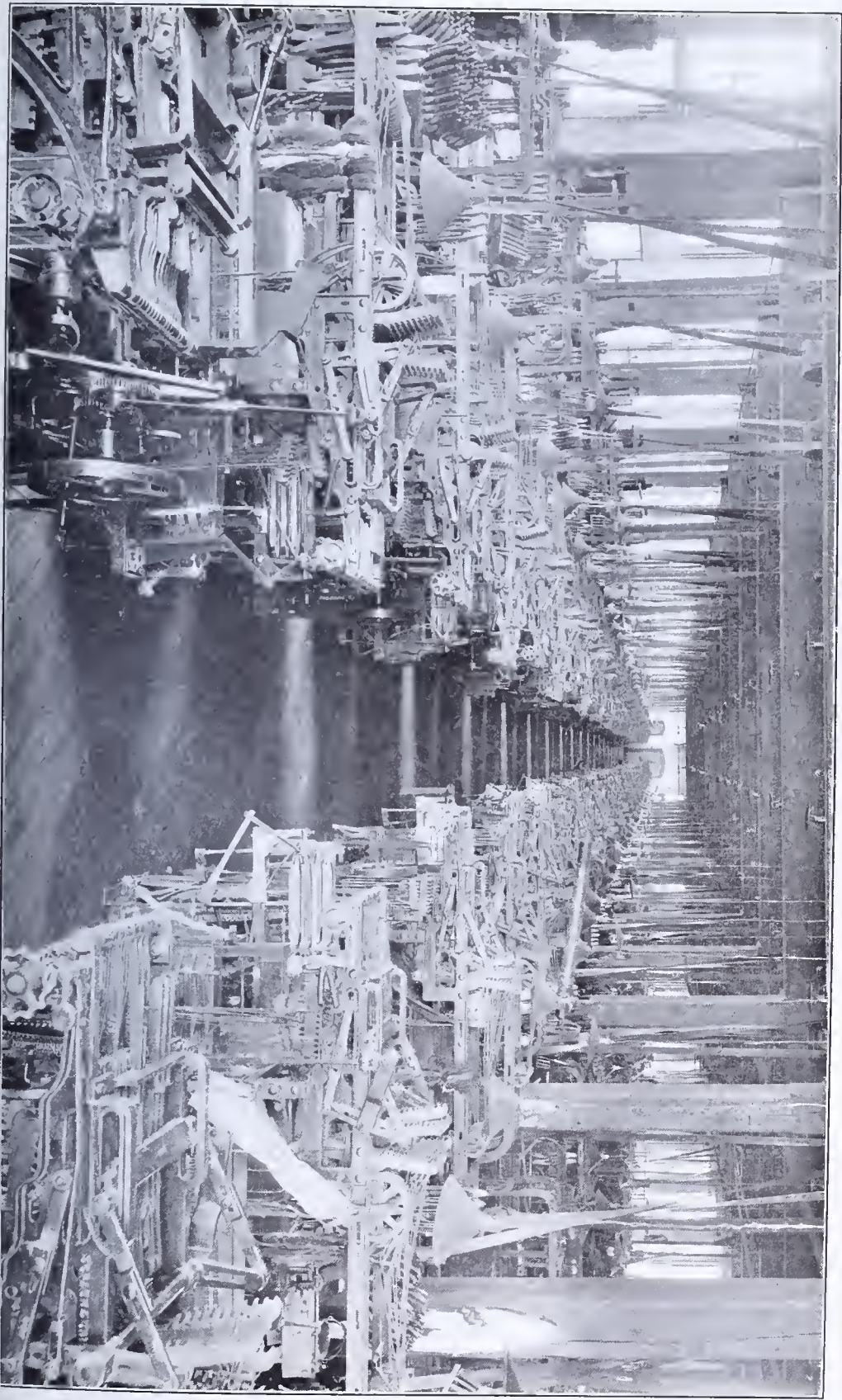
States.	Number of insti- tutions.	Employees.	Total wages.	Cost of materials used.	Value of products.
Total,	14	1, 419	\$88, 279	\$279, 800	\$462, 585
New York,*	3	604	24, 697	53, 708	97, 935
Pennsylvania,§	3	432	36, 060	132, 181	196, 306
All other states,‡	8	383	27, 522	93, 911	168, 284

*Institutions in New York: hosiery and knit goods, 3.

‡Institutions in Pennsylvania: hosiery and knit goods, 1; carpets, 2.

‡Includes states having less than 3 institutions, so that the operations of individual institutions may not be disclosed. These institutions are located as follows: Maryland, 1, hosiery and knit goods; Minnesota, 1, hosiery and knit goods; New Hampshire, 1, hosiery and knit goods; Ohio, 2, hosiery and knit goods; Texas, 1; woolen goods; Virginia, 1, hosiery and knit goods; Wisconsin, 1, hosiery and knit goods.

The three decades since the census of 1870, and the gradual geographical evolution of the woolen industry and its tendency to localization is easily discerned from the following table:



Perspective in Main Weave Room of a leading Philadelphia Mill consuming Woollen, Cotton and Silk Yarns.

Wool Carding Machinery, by States, 1890, 1880 and 1870.

States.	1890.		1880.		1870.	
	Number of cards (sets).	Per cent. of total.	Number of cards (sets).	Per cent. of total.	Number of cards (sets).	Per cent. of total.
Total,	8,198	100.00	7,581	100.00	9,224	100.00
Massachusetts,	1,837	22.41	1,660	21.90	1,512	16.39
Pennsylvania,	1,299	15.84	1,155	15.24	1,468	15.92
New York,	1,403	17.11	1,150	15.17	1,170	12.69
Rhode Island,	572	6.98	495	6.53	490	5.31
Connecticut,	646	7.88	622	8.20	752	8.15
New Hampshire,	492	6.00	385	5.08	418	4.53
Maine,	387	4.72	274	3.61	235	2.56
New Jersey,	235	2.87	184	2.43	111	1.20
Vermont,	157	1.91	167	2.20	200	2.17
Ohio,	112	1.37	182	2.40	334	3.62
Indiana,	155	1.87	160	2.11	346	3.75
Illinois,	71	0.87	109	1.44	251	2.72
In above twelve states,	7,364	89.83	6,543	86.31	7,387	80.08
All other states,	834	10.17	1,038	13.69	1,837	19.92

In the woolen manufacture it was shown in 1870, that the New England States possessed 40.18 per cent. of the machine capacity; in 1880, 47.52 per cent. and in 1890, 49.90 per cent. Pennsylvania, New York and New Jersey possessed in 1870, 29.81 per cent.; in 1880, 32.84 per cent. and in 1890, 35.82 per cent. All the remaining states in the Union, says Mr. North, which contained 30.01 per cent. of our woolen machinery in 1870, contained but 19.64 per cent. in 1880, and but 14.28 per cent. in 1890. In other words eight leading states shown in the above table contained 67.82 per cent. of this machinery in 1870, and 83.81 per cent. in 1890. The enormous growth for the three census periods it is evident has thus been confined to these eight states, while in the remaining states of the union there has been an actual loss of 55.29 per cent. in machinery capacity.

Since Mr. North's deductions in 1890, the woolen industry of Pennsylvania and of Philadelphia particularly, has enjoyed a solid and continuous growth and the returns of the Twelfth United States Census (June, 1900), now under way, will soon be available in demonstration of Pennsylvania's preponderance in wool manufacture.

The foregoing tables, by no means illustrate the strength of this Commonwealth on the census date of June 1, 1890, for the status of the worsted industry is not included in the figures so far set forth. On June 1, 1890, Pennsylvania ranked third in the number of combs employed in worsted manufacture and the exhibits for 1890, and the two decades previous, were as follows:

Number of Combs by States.

States.	1890.		1880.		1870.	
	Number of combs.	Per cent. of total.	Number of combs.	Per cent. of total.	Number of combs.	Per cent. of total.
Total,	855	100.00	518	100.00	261	100.00
Massachusetts,	265	30.99	190	36.68	172	69.90
Pennsylvania,	191	22.34	124	23.94	29	11.11
New York,	88	10.29	80	15.44	1	0.38
Rhode Island,	195	22.81	70	13.51	7	2.68
Connecticut,	34	3.98	21	4.06	34	13.03
New Hampshire,	29	3.39	21	4.05	12	4.60
Maine,	5	0.59				
New Jersey,	29	3.39	9	1.74	6	2.30
In above eight states,	836	97.78	515	99.42	261	100.00
All other states,	19	2.22	3	0.58		

It was conceded in the woolen report of the Eleventh Census that the eight states above specified could properly be regarded as the future seat of the woolen and worsted manufacture of the United States and that these are the same states in which the cotton, silk and allied industries predominate.

The consumption of wool in the year 1890, by three manufacturing points showed still more plainly the tendency to localization, with Philadelphia strongly ahead in the amount of pounds consumed. In that year the three cities of Philadelphia, Lawrence and Lowell consumed 83,587,642 pounds of wool, as follows:

Philadelphia (pounds),	52,739,329
Lawrence, Mass. (pounds),	13,943,944
Lowell, Mass. (pounds),	16,904,369

In other words the wool consumed in these three cities was in excess of the amount of wool consumed in all the states of the Union combined, with the exception only of the six states of Massachusetts, Pennsylvania, Rhode Island, Connecticut, New York and New Hampshire. These six states, with the addition of Maine and New Jersey, consumed in their manufactures 327,050,412 pounds of wool, while all the remaining states in the Union consumed but 45,747,201 pounds.

From the beginning of the century until 1880, Massachusetts was supreme as the chief wool manufacturing state of the Union.

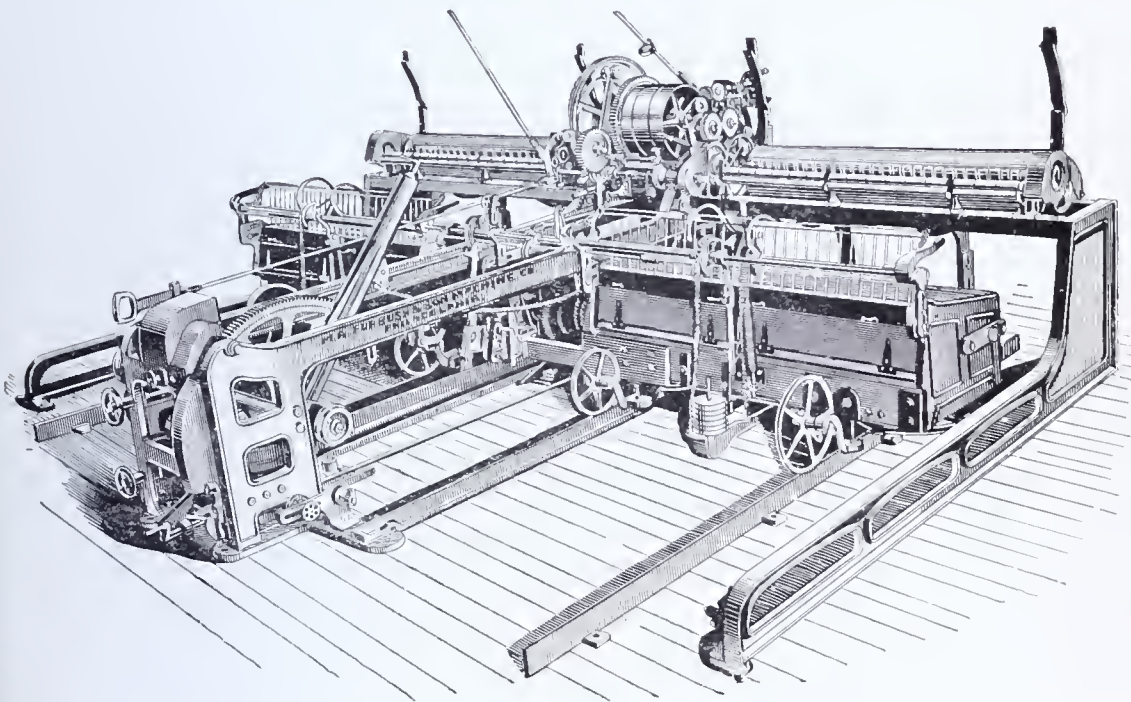
In 1880, however, the value of the Massachusetts output of manufactured woollens was surpassed by the value of Pennsylvania's



COMBING DEPARTMENT.—Bradford System.

products, although Massachusetts continued to lead Pennsylvania in the amount of capital invested in the industry and in the quantity of wool consumed, though Pennsylvania exceeded Massachusetts in the number of employees and in the amount of wages paid. In 1890, the value of Pennsylvania wool products was \$89,337,419; that of Massachusetts being \$72,681,408.

In the manufacture, however, of fine worsted cloths, Massachusetts was conceded supremacy in 1890 and her output at present in this particular is more important than that of any other state. In all other particulars, however, except in the matter of capital invested, Pennsylvania was conceded as standing at the head of the list.



Modern Self-Acting Mule for Woolen Yarn, and Cotton Yarn spun on the Wool Principle.

While there was conceded to Massachusetts a certain pre-eminence in worsted fabrics and in worsted yarns in 1890, the city of Philadelphia was accorded precedence in the Eleventh Census in the general manufacture of woolen and worsted goods. How justly this precedence was conceded to Philadelphia, may be gathered from the following table:

Cities.	Rank.		Value of products, 1890.
	1880.	1890.	
Total,			\$121,433,937
Philadelphia, Pennsylvania,	1	1	73,713,856
Lawrence, Massachusetts,	2	3	10,431,192
Providence, Rhode Island,	3	2	18,237,531
Lowell, Massachusetts,	4	4	7,037,114
New York, New York,	5	5	4,377,337
Manchester, New Hampshire,	6	6	2,963,550
Camden, New Jersey,	*	7	2,507,031
Chester, Pennsylvania,	*	8	2,166,266

*Not reported separately in 1880.

These eight cities manufactured in 1890, 35.95 per cent. of the total product of the industry.

Some Features of the Philadelphia Industry.

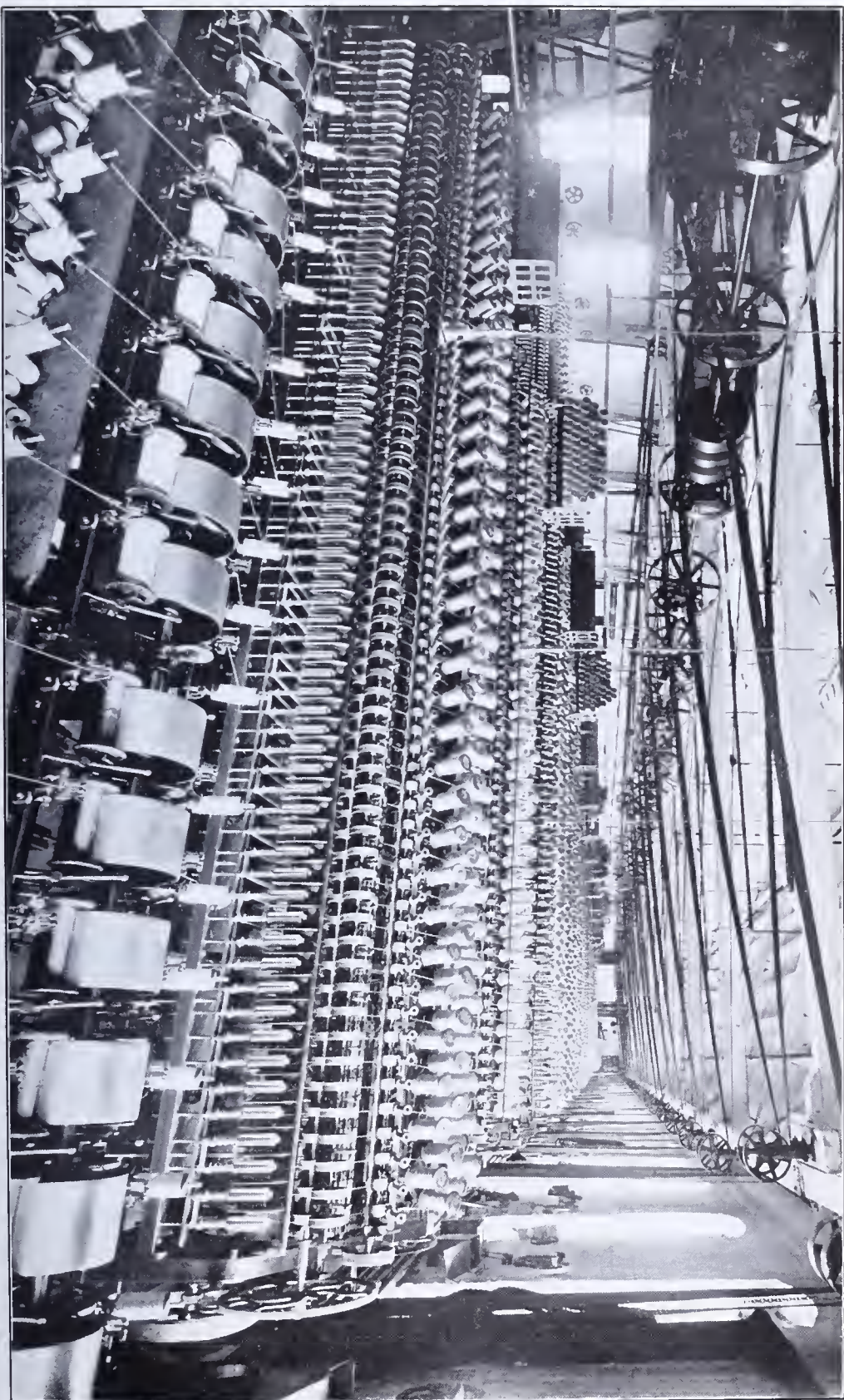
Along with the concentration of the woolen industry at Philadelphia has been observed a gradual sub-division of the manufacture, so that very many of the extensive mills make no claim to treating wool from the sheep's back to the finished product. The spinning of worsted, for instance, is a distinct and concrete industry of itself and to be able to go into market and procure spun yarns of any desired quantity or variety without altering the machinery to respond to the sudden change in popular taste, has proven highly advantageous. It is found therefore, that many mills famous for their fine textures are dependent wholly upon the yarns spun in other factories, and this tendency to specialize and subdivide is likely to grow rather than diminish. By it "a great bee-hive of interdependent industries" with separate stages of manufacture carried on in separate establishments has been created in Philadelphia and the city is now conceded to be the chief textile centre of the United States, producing as it did in the census year of 1890, 21.82 per cent. of the entire wool manufacture of the country.

Worsted spinning in Pennsylvania has been recently set forth in these reports with such minutia as to make it needless to dwell longer on this important and really magnificent branch of the woolen industry.

Affinity of Wool for Other Fibres.

A striking peculiarity of wool is the readiness with which it allies itself to any and pretty much all other fibres of the vegetable and animal kingdoms.

It mixes admirably with cotton as it does also with certain kinds of hair, which though from the animal kingdom, cannot possibly be



View of Worsted Spinning and Spooling Section in a Philadelphia Mill, treating Worsted in all Processes from its raw state to the finished fabric.

classed in the catalogue with wool. Jute, ramie and the various shoddy conglomerations which are convertible into yarns, each ally themselves in a homogeneous mixture with pure wool. Linen and silk yarns are both bought by the woollen men and blended with their products, all of which combinations make statistics difficult to obtain, entailing as they must a huge amount of thought and needless figuring when details relating to these different fibres are desired.

Philadelphia is strictly in the front in the manufacture of curious and beautiful weaves for women's wear in which cotton warps are successfully employed. The late Dr. John L. Hayes in his official report on wool fabrics at the Centennial Exposition of 1876, writes as follows:

"No event of the century has done more for family comfort and the industry as well, than the introduction of the cotton warp. Cotton instead of being a rival, became the most important auxiliary of wool and has added vastly to its consumption. These fabrics are practically the same as a woollen fabric, being so covered by wool that the presence of cotton can be observed only by the closest inspection. Their cheapness and durability make their introduction an invaluable boon to women in moderate means."

The consumption of cotton in conjunction with wool is so enormous and so prevalent that a statement of the actual pounds of cotton that is used up would be hard to determine. That cotton and wool have gone harmoniously together for a long period is clearly of record. The woollen mills of 1820 made an almost equal use of cotton and wool in the weaving of cheap cloths, especially satinets and jeans. Fabrics of cotton and wool first began in France about 1833, and were heard of in Bradford in 1834, since when the English have surpassed all other countries in the quality and quantity of this union production.

The Present Use of Shoddy.

A distinct industry of the present day is that of converting into yarns, old woollen and worsted cloths or rags, which, though not worn out, have nevertheless done duty for humanity either in the shape of clothing or carpets. Coupled with materials of this class, shoddy finds other ingredients from hair and from wastes of various industries all of which when successfully treated, can be used as filling yarns, the warps which act as a corduroy for such purposes being either of new cotton or pure worsted. An old ingrain carpet, for instance, is now torn apart and dissected, and so manipulated as to make an excellent filling yarn.

A number of mills in Philadelphia run wholly on shoddy manufacture, but their output is usually distributed and fabricated into

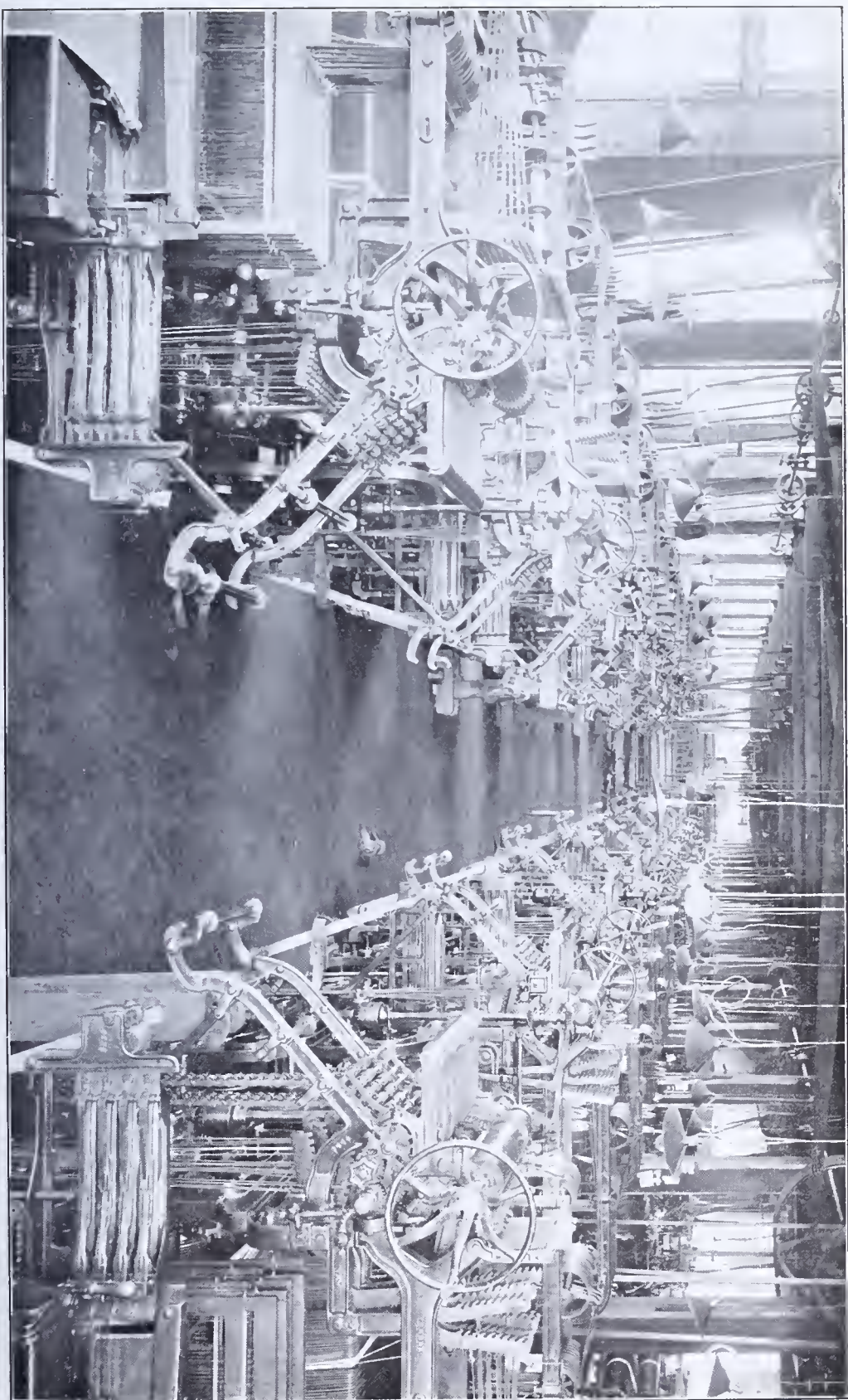
cloths and carpets which are sold at low prices and supply a positive need in the economy of mankind.

The term "shoddy" is a very comprehensive one. Wool fibre being of great enduring capacity, it does not follow that because it has once been fabricated, it cannot do duty again, and shoddy has been pronounced simply "a re-manufactured fibre" possessing many of its original advantages, though of course not all of them. A well known writer says that a "large proportion of the shoddy consumed in this country is simply the waste of the original manufacture saved from the loss which befell it prior to the invention of machinery which now renders it fit for spinning. In carding, spinning and weaving, certain fibres become tangled, knotted and separated from the slubbing tube or yarn and are thrown off. Modern shoddy machinery permits this waste product to be spun again.

The only point at which this material is deficient as compared with that from which it has been thrown off, is in length of staple, and this difficulty is easily overcome by admixture with new wool.

Present Character of Woolen Output.

While the aggregate yardage and money value of Pennsylvania's output of woolen fabrics for men's and women's wear is colossal in its proportions, this output differs radically from that of the New England and New York woolen mills. In cloths for women, Philadelphia excels particularly in dress fabrics of complex weave and novel design. No other city in America indeed pretends to compete with Philadelphia in the matter of dress goods novelties. This has come about from the fact that skilled labor from all parts of the world is attracted hither by the constancy of operation and by the general scale of wage which has long prevailed here. New England excels in certain staple weaves which can strictly be classed as all-wool, i. e., to say, composed solely of carded woolen yarn or all-wool worsted. As before intimated, New England long since pre-empted the field in the manufacture of high grade worsteds for men's wear, whether for coatings, trouserings or over-coatings. Certain fine grades of women's goods which do not entail frequent changes in warps or in designs, have gradually become recognized as strictly New England products. In novelties for women, however, Philadelphia has by the great diversity of its weaving talent distanced all other producing points and several of the larger mills by their mastery of detail are enabled to show each, hundreds of designs. Specially ingenious also are the combinations of different fibres into one homogeneous fabric which are shown by Philadelphia mills. Thus a mill classified as producing woolen goods only is enabled to exhibit season after season a marvelous range of styles in dress goods, the



Interior of a modern Philadelphia Mill Weaving Fine Cotton Dress Goods; also Mixtures of Cotton and Wool, Silk,
Wool, and Rayon. Showing winding Machinery in rear.

component parts of which may be wool, silk and cotton; the latter fibre being so skilfully blended as to be invisible and to expose either the wool or silk only to use. In the line of high grade cloths for women, one finds in Philadelphia the most luxurious of what are termed "Ladies' cloths" a fabric weighing some ten ounces to the yard and woven fifty to fifty-six inches in width. These cloths are dyed in solid shades and present a highly finished and attractive surface, adapting them to the consumption of the most critical.

All-wool homespuns for women are peculiar to Philadelphia, being made in fifty-six inch widths and taking their place in the most fashionable dry goods stores of the country. All-wool chevviots—a rough surface cloth made originally in England for men's wear, have been brought to a high state of perfection in lighter weights for women and may be classed now among the staple weaves of Philadelphia.

Worsted dress goods from thirty-eight to forty-four inches in width, having a warp of cotton, are produced in Philadelphia as are the costlier all-wool worsted dress goods, both in plain and in fancy styles. Then there are also smooth face goods of raised effects and jacquard effects, plain, striped and checked. The designs in these are legion and such is their excellence of finish that none can detect them from the once rare foreign weaves from which they take their origin. When sold by the retail dry goods dealer, the place of their manufacture is seldom referred to. They carry their quality and excellence in every thread and few think to ask whether they are imported or domestic.

Ladies' covert cloths are made with great success in Philadelphia and easily find an outlet through the leading dry goods stores.

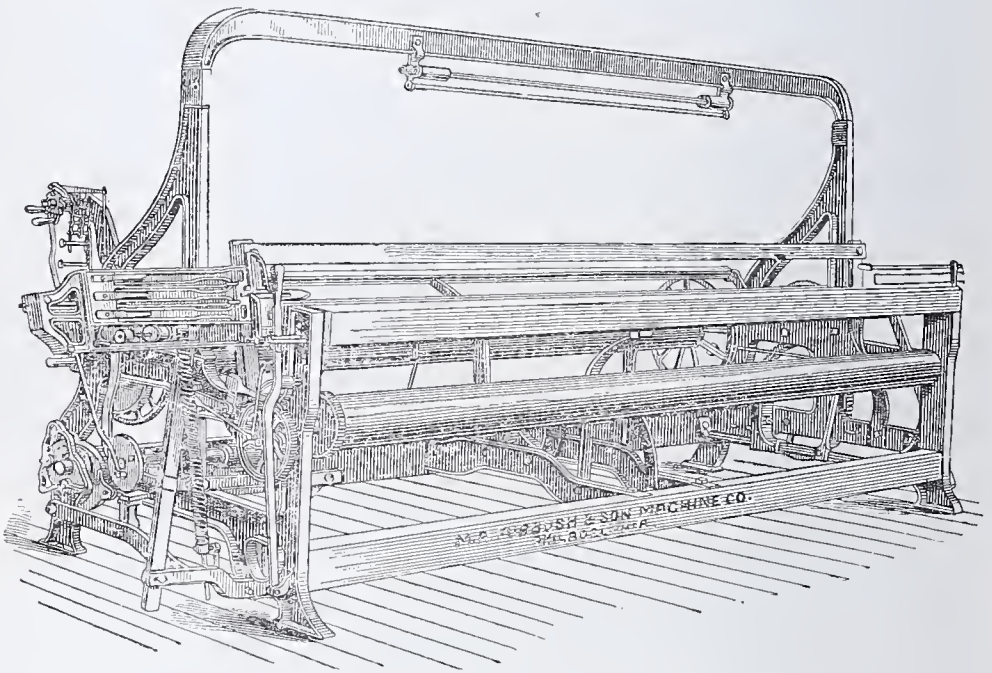
A silk warp fabric with worsted filling made forty inches wide, and known as "Henrietta" cloths, reflect in the highest degree on the skill and taste both of mill owners and operatives. So far as we are informed, no other city can compete with Philadelphia in the construction of Henriettas.

Worsted linings for overcoatings are made with great effect in Philadelphia and are called for by clothing manufacturers in all the larger cities. These are of cotton warps and pure wool face and are notable for their rich colorings and superior wearing qualities.

At the World's Columbian Exposition held in Chicago, in 1893, experts in textiles were not a little surprised to find displayed there worsted serges for men's wear of exceeding fineness and presenting all the essential virtues for which English serges had been for many years famous. These serges are produced from fifty-six to fifty-eight inches wide and their purity of stock and permanence of dyes and excellence of finish have given them great celebrity.

During the exigencies of the war between the States (1861-1865), Philadelphia became a great depot of supply for army blankets. Three or four of the larger mills were diverted from woolen cloths to army blankets, which the Government required to be made with great speed and which proved a highly lucrative branch of weaving to those securing the contracts. Since that period, blankets of the coarser kind have been staple in Philadelphia and are so at this writing.

Considerable success has been had here with the finer grades of dark blankets for sea travel, the output equalling in quality and coloring, the grades for travellers' use which have been a leading product of the English mills.

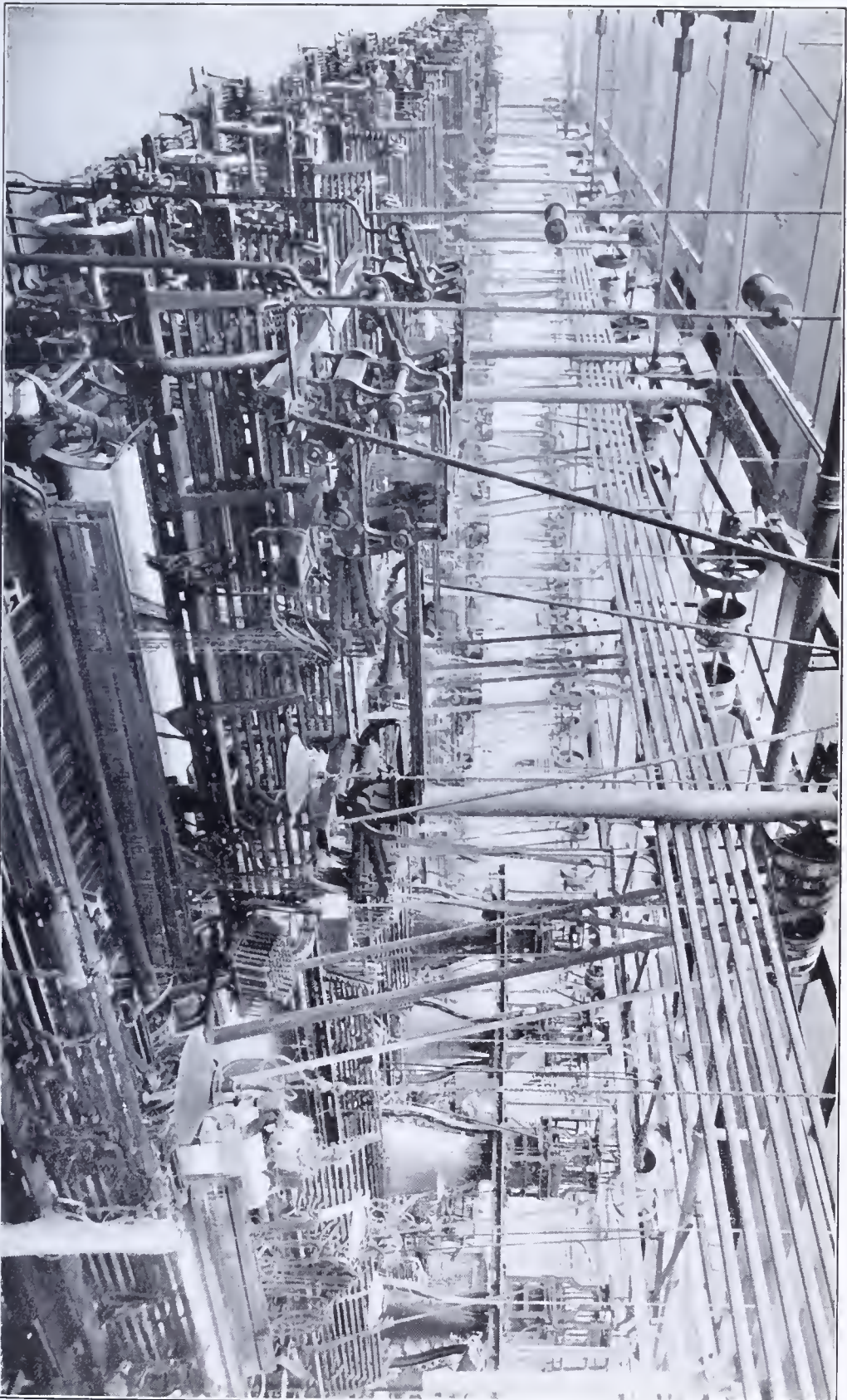


Modern American Blanket Loom.

The Carpet Industry.

Since the Report of this Bureau on the carpet industry (1889), the progress of that branch of fabrication has been steady and upward. Many new mills have been erected and old ones have been enlarged and remodelled. The changes, technically speaking, in carpet manufacture, for the decade past have not been numerous in Philadelphia; conceding this city to be, as it is, the seat of the carpet industry of the State.

The Eleventh United States Census on Carpets, which appeared about the time of the Bureau's Report on Carpets, disclosed the State's strength in carpets, rugs, etc., to be as follows:



Section of modern Power Looms employed in the manufacture of Fancy Mixtures of Woollen, Cotton and Silk Goods.

The Eleventh United States Census on Carpets and Rugs.
MACHINERY.

States.	Number of establishments.	Value of hired property.	Aggregate.	Total number of power looms.	Looms on Carpets and Rugs.			
					Total number of looms on carpets and rugs.	Ingrain hand looms.	Ingrain power looms.	Venetian hand looms.
The United States.	173	\$1,278,150	\$28,208,842	8,588	10,898	631	4,214	157
Massachusetts,	7	.....	8,676,924	1,170	1,170	.....	311	.....
New Jersey,	6	2,700	724,393	287	282	.....	12	.....
New York,	15	70,000	11,178,342	1,942	2,077	.....	307	.....
Pennsylvania,	142	1,206,206	15,120,619	4,821	6,936	627	3,235	157
All other states,	3	270	2,499,561	448	453	4	299	.....

PRODUCTS.

States.	Aggregate value.	Total Carpets and Rugs.	Carpets.					
			Ingrain, 2-ply.		Ingrain, 3-ply.		Ingrain, Art.	
			Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
The United States,	47,770,193	\$46,457,083	32,918,659	\$13,780,694	3,251,368	\$1,816,434	553,513	\$325,984
Massachusetts,	7,275,009	7,002,956	1,795,300	901,161	308,081	202,286	.....	.....
New Jersey,	817,242	573,522	219,000	120,505	.....	.....	.....	.....
New York,	14,606,116	14,280,442	2,317,322	1,083,896	519,230	266,263	21,000	11,025
Pennsylvania,	22,886,416	22,407,753	27,533,220	11,011,721	2,120,486	1,137,742	532,513	314,959
All other states,	2,185,410	2,185,410	1,053,817	653,411	303,571	210,193	.....	.....

PRODUCTS—Carpets—Continued.

States.	Moquette.		Smyrna.		Rag.		All Other.	
	Running yards.	Value.	Square yards.	Value.	Square yards.	Value.	Square yards.	Value.
The United States,	3,193,186	\$3,247,845	127,177	\$332,718	71,310	\$23,139	1,312,818	\$423,553
Massachusetts, .....	.....	.....	.....	.....	.....	.....	.....	.....
New Jersey, .....	.....	.....	.....	.....	.....	.....	.....	.....
New York,	2,800,000	2,800,000	15,381	34,186	.....	.....	.....	.....
Pennsylvania,	30,000	30,000	111,796	298,532	71,310	23,139	1,312,818	423,553
All other states,	363,186	417,845	.....	.....	.....	.....	.....	.....

PRODUCTS—Carpets—Continued.

States.	Tapestry Brussels.		Body Brussels.		Tapestry Velvet.		Wilton or Wilton Velvet.		Axminster.	
	Running yards.	Value.	Running yards.	Value.	Running yards.	Value.	Running yards.	Value.	Running yards.	Value.
The United States,	20,008,961	\$11,475,846	9,442,348	\$8,107,549	2,482,128	\$2,239,166	1,030,101	\$1,582,409	379,341	\$472,915
Massachusetts,	2,460,400	1,494,000	3,376,883	2,949,816	62,430	89,500	577,333	892,768	349,174	434,723
New Jersey,	35,948	14,549	.....	.....	194,662	183,977	13,218	12,142	.....	.....
New York,	14,046,304	8,024,238	845,092	728,856	896,996	795,023	65,735	102,678	20,167	38,192
Pennsylvania,	3,466,309	1,943,659	4	397,208	1,328,040	1,170,666	294,475	451,844	.....	.....
All other states, .....	.....	.....	823,165	779,784	.....	.....	79,310	122,977	.....	.....

PRODUCTS—Rugs—Continued.

States.	Wilton.		Moquette.		Ingrain.		Smyrna.		All Other Woollen.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
The United States,	40,644	\$87,792	60,000	\$66,000	6,278	\$34,262	1,429,536	\$2,367,000	26,845	\$73,815
Massachusetts,										
New Jersey,	10,644	39,702								
New York,										
Pennsylvania,	39,000	48,090	60,000	66,000						
All other states,					6,278	34,262	1,429,536	2,367,000	26,845	\$73,815

The State of Pennsylvania (which so far as carpets are concerned means Philadelphia) still maintains its pre-eminence in the manufacture of ingrain carpeting. Out of some 5,000 ingrain power looms now in position in the mills of the United States at least 3,616 of these are found in the mills of Philadelphia. The consumption too of woolen ingrain carpets has increased annually, although during the past decade there has been little need of additional new machinery on these fabrics. The looms employed are of great speed and produce from fifty to sixty yards of carpet per day, so that if new machines were added with the rapidity of twenty years ago, a glutted market would soon be the result. Philadelphia ingrains are sold in all states of the Union, and while some attempt has been made to export them to Great Britain and to the Continent, results have not been such as to warrant expensive outlays in this direction. In addition to all-wool, half-wool, quarter wool and all cotton ingrains, one yard wide, there is a very large output of ingrain art squares. These are woven on broad power looms and produced in widths from six to twelve feet wide and of any desired length. Being in these widths, they constitute a carpet without seams and are much in demand for certain classes of trade.

Weavers of ingrain carpets earn from \$10. to \$15 per week and the various other helpers are paid similarly well.

The ingrain product of Pennsylvania by the Census of 1890, amounted to \$12,454,422, the yardage being 30,186,219 yards.

Another popular carpet weave is that of damask venetian, composed either of cotton or woolen warps and a filling of jute. This carpet has long been made in Philadelphia and in the earlier period was applied to various kinds of fine furnishing. Latterly the venetian carpet is made almost wholly of cotton and the output, though large, is far less than in former years.

The finer grade of wool venetian has been superseded largely by tapestry and velvet carpets for stairs, halls and kindred purposes.

The fabric which in the annual yardage produced comes next to ingrain, is probably that of tapestry brussels and tapestry velvet carpet. These two are practically the same in technique, the velvet having become such from the cutting of the pile or worsted loops which constitute the face of an ordinary tapestry carpet. There are six mills and several hundred looms engaged on tapestry and tapestry velvet carpet in Philadelphia and one at Bloomsburg having fifty looms.

The first tapestry carpet to be made in the State was from the mills of J. & J. Dobson, at the Falls of the Schuylkill in 1874. These goods were shown at the Centennial Exposition of '76, and attracted much attention. Prior to that time tapestry carpets were made in

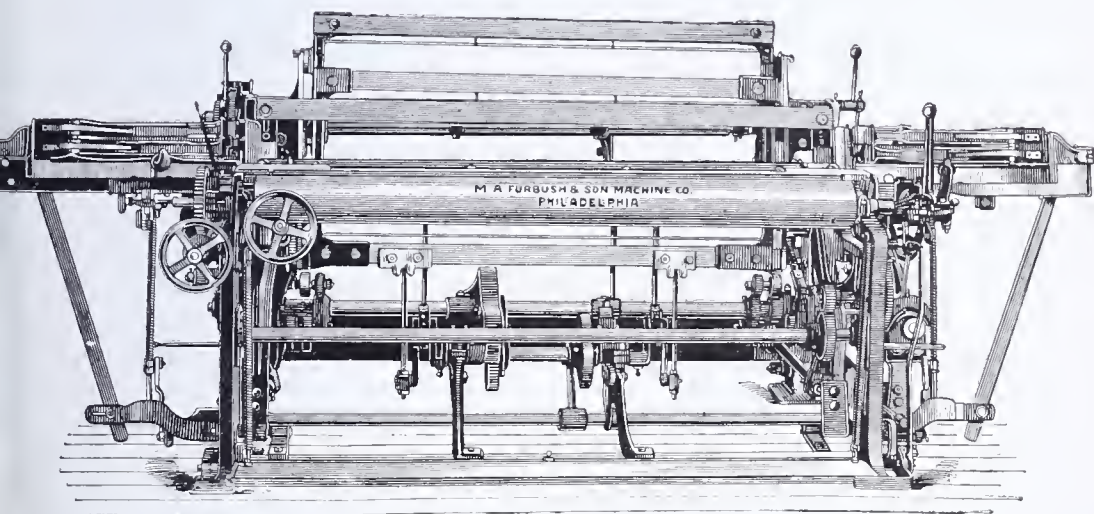
New York State and New England only. Tapestries are woven upon looms of simple construction, without jacquards, and while some looms have been built in Philadelphia and at Smithville, N. J., the most approved mechanism comes from England or from Massachusetts.

The output of Philadelphia in tapestry and tapestry velvet carpets for the year 1890, was 4,794,349 yards, worth \$3,113,725.

The most notable event in this branch of carpet weaving of late years is the production of seamless velvet carpet in widths from nine to twelve feet.

Next in importance to tapestry and tapestry velvet carpets comes body brussels and wilton, the technical features of which are fully described in the annual report of this bureau for the year 1889. As tapestry becomes "velvet" from cutting the worsted pile or the loops which form the face of the uncut tapestry, so wilton carpet becomes "velvet" from cutting the pile of the body brussels. The cut of the pile is done with great nicety by wires whose sharpened ends perform the work of a knife as they are drawn in and out of the worsted warps constituting the face of the fabric.

Genuine wilton is the most luxurious and expensive carpet made in the United States to-day. In its perfection it requires the purest of wool worsted and no stint in the quantity used. A five or six-frame wilton presents a compact, finely finished fact of great smoothness and uniform height of pile. The finest wilton retails at about \$3 per yard, but very excellent grades can be had for from \$2 to \$2.50 per yard.



Modern Smyrna Rug Loom.

There are but four mills producing body brussels and wiltons in the State and these are all in Philadelphia. The total number of looms was 546, and the value of the product in 1890 was \$4,100,837.

Each of these mills produce wilton or other rugs which rank high in retail carpet circles.

The manufacture of double-face chenille "Smyrna" rugs continues to be a very large and important feature of carpet manufacture in the State. These rugs had their origin in Philadelphia and have here reached their greatest perfection.

There are more Smyrna rugs made and used in the United States than of any other rug fabric. The rug being reversible and very durable besides possessing fine furnishing qualities, Smyrna has held undisputed sway for ten years past as a rug for the people. These rugs are made extensively at Bristol, Pa., and at least ten large mills manufacture them in Philadelphia. One of these mills produces at least \$1,000,000 worth per annum and can justly claim to be the largest Smyrna rug factory in this or any other country.

The number and variety of carpet and rug weaves produced in Pennsylvania may be recapitulated as follows:

- Ingrain,
- Venetian,
- Tapestry Brussels,
- Tapestry Velvet,
- Body Brussels,
- Wilton.

As there are seventy-five mills running power looms on carpets in Philadelphia alone, it will be readily understood that the city and State are each heavy consumers of carpet wools, the bulk of which are imported, as they have been for many years past, from Turkey, Russia, Egypt, China, the Argentine Republic and the numerous other sheep-rearing countries. The annual imports of third class or carpet wools has averaged about 90,000,000 pounds per annum, and while not a little of this wool goes into certain grades of clothing, an immense percentage of the yarn spun from it finds an outlet through the Philadelphia carpet mills.

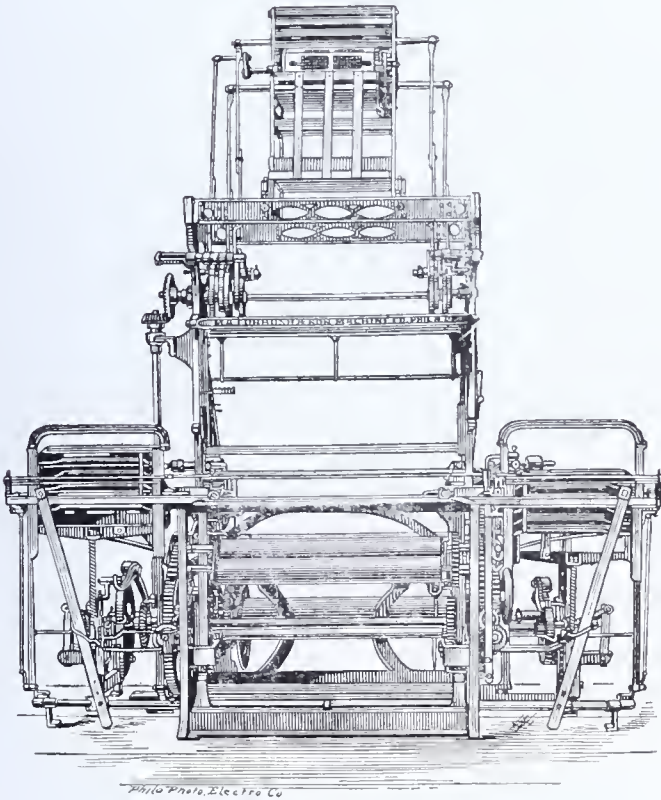
Carpet labor is uniformly well paid and if these mills could run the year through without stoppage, there would be little complaint of hard times in the mill districts.

Carpet weaving in Pennsylvania finds its habitat almost wholly in Philadelphia. There is one extensive mill making ingrains and tapestry carpets at Bloomsburg; one at Bristol making ingrains and art squares and mills of importance on striped, cottage, rag or "yarn" carpets at Carlisle, York, Mifflintown and other places, not a few of the county prisons utilizing the convict help on rag carpets, the Lancaster jail being particularly noted for its output.

Philadelphia has never taken readily to what may be termed "new weaves" in carpets. These manufacturers are generally very conservative and prefer to ply their machinery on goods which they have

proven to be staple and steady sellers. Not that the carpet mills are oblivious to progress, but on the contrary, some remarkable and profitable changes have been introduced in the weaving in Philadelphia of wilton and ingrain carpets, also in tapestry velvets.

What is known in trade as "Bundhar Wilton" invented by Mr. Harry Hardwick, is a pile carpet which was unknown to the trade prior to the census of 1890, and the recent manufacture here by J. & J. Dobson of seamless tapestry velvet, nine feet wide, is of decided interest, pile carpets of that width being had hitherto only from English mills.



The Murkland Ingrain Carpet Loom.

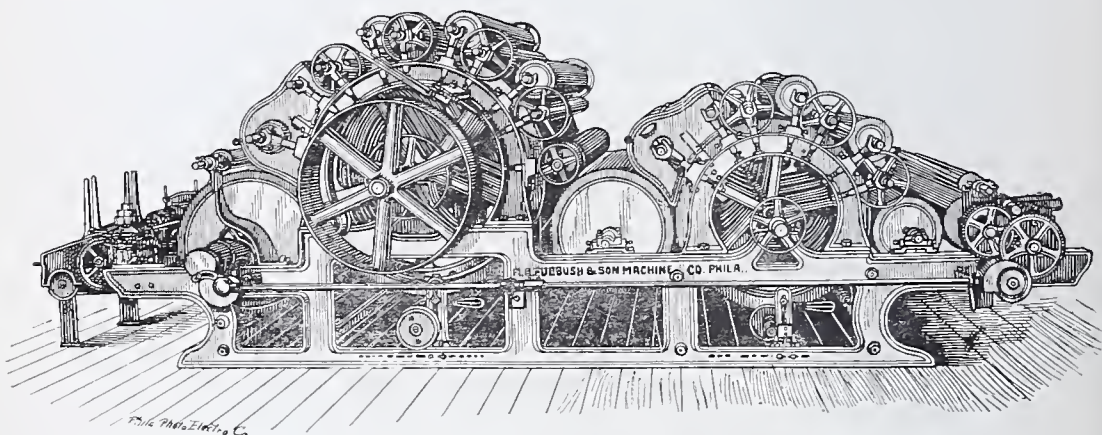
The construction in Philadelphia of machinery for textile fabrics can be traced back to 1777, when Oliver Evans, then engaged in making card teeth by hand, invented a very efficient machine for manufacturing them at the rate of 1,500 per minute. This machine has been previously alluded to in this article, if we recall right, as attracting the attention of cotton manufactures south. His proposal to establish his factory under State patronage being rejected, he told his secret to individuals and in 1788, Giles Richards & Co., began the manufacture with newly invented machinery (probably that of Evans) by which in 1793, the factories of Giles Richards, Amos Whittemore and Mark Richards turned out 12,000 dozen card teeth annually.

From this beginning the manufacture of cotton machinery grew by degrees and expanded with the increasing production of cotton until 1810, when Alfred Jenks established at Holmesburg, a suburb of Philadelphia, the first regular manufactory of cotton machinery. Mr. Jenks supplied pretty much all of the mills which began woolen and cotton weaving in the twenty years following the war of 1812. In 1830, he invented the power loom for weaving checks and later he founded the Bridesburg Manufacturing Company, where looms, cotton spreaders, carding engines, Jenks' fly frames, Jenks' patent spinning frames and Jenks' improved cylinder cotton-gin, were long produced. He also planned and constructed the first ingrain power carpet loom ever operated about Philadelphia. Their success, however, was but partial and they gave way later to better and more ingenious mechanism.

According to the census of 1870, there were engaged in Philadelphia in the manufacture of machinery (cotton and woolen), six establishments employing \$1,384,000 of capital; with steam power of 541 horse-power in 227 machines, worked by 658 men and twelve women, paying \$311,500 in wages; with \$378,542 value of material and \$1,084,605 as the value of the product.

In 1876, the production of machines for textile purposes had increased to three times its proportions of ten years before and in far higher and more costly forms.

To go back again, John Butterworth, in 1820, commenced the manufacture of the works for cotton and woolen machinery on Second street north of Brown. These works in 1844, passed into the hands of H. W. Butterworth, and sons of the latter still perpetuate this important industry.



Modern Worsted Cording Machine.

While the construction of looms for weaving is comparatively modest in Philadelphia, the building of other accessories for textiles is a leading feature of mill mechanism. Drying and dyeing machin-

ery, both for wool and cotton, engines, boilers, shafting and kindred articles of essential character, are constructed with great success in the State and no patents rank higher. Philadelphia's leading firm of loom builders have their main works in Camden, just across the Delaware, but the business was created within this State and may be justly classed as a Pennsylvania industry.

Engines and boiler works of great importance are operated at Chester and the business of textile machine building ramifies largely throughout the State. Among other important machines related to the spinning industries made in the State are woolen and worsted carding machines, self-acting woolen mules, ring twistors, blanket looms, smyrna rug looms, smyrna weave looms, ingrain carpet looms, wool pickers, condensers, etc., etc., etc.

Wool Hat Industry.

The manufacture of wool hats dates back to an early period in Pennsylvania history. In 1767, hats were being made quite briskly in either South or North Carolina and a considerable export trade existed with the Spanish Islands.

Governor Penn was solicitous at this time for the starting up of hat making in his Province and an important letter which he wrote complains that no encouragement had ever been given to any manufactures in Pennsylvania, and that there were then but two factories of any kind in operation.

Mr. Tench Coxe, in his address before the "Pennsylvania Society for the Encouragement of Manufacturers" (1787), alluded to the great progress which had been made in manufactures in Pennsylvania since 1762, and specified a lengthy list of articles then being made, which included hats, hosiery and sundry woolen and cotton goods. In Lancaster (which in 1786 was the largest inland town in the United States) there were seven hundred families, of which two hundred and thirty-four were manufacturers, fourteen of these being hat makers.

Hats being one of the most staple of products, continued attention was given to their preparation and the number of little factories engaged on hats steadily increased. About 1787-89, the manufacture of wool and fur hats was quite an extended industry, nearly every State in the Union containing a quota of little mills thus engaged. Pennsylvania shared fully in this development and the report to the Manufacturing Society of Philadelphia, showed over 160,000 wool and upwards of 54,000 fur hats turned out annually. Of wool hats, the four counties beyond the Alleghenies made 10,140 hats and 2,200 fur hats, there being apparently thirty-three proprietors or boss hatters. The same report showed sixty-eight hatters in the city and county

of Philadelphia, who made 31,627 fur and 7,000 wool hats yearly. The old county of Berks, showed at this time, thirty-eight hatters. In York there were twenty-six; in Lancaster and Cumberland, sixteen each; Delaware and Westchester, fourteen each, and six to twelve in each of the others, making a total in the State of three hundred and fifteen hatters, doubtless employing a large number of people, male and female in operations. No county in the State was without several pioneers in the hat business. Wool was to some extent imported from the Eastern States, where the greater plenty of wool had rendered hatteries quite numerous. The county of New London, in Connecticut, contained in 1791, seventeen hatters, who made nearly 10,000 fur and wool hats annually.

The hat industry had evidently been greatly helped by the needs of the American army, both during the Revolution and also within the period preceding the War of 1812.

As to the processes which the hat makers followed, there is little of record to inform us. The Colonial wool hat, however, was easily fabricated and is said to have possessed excellent wearing qualities and thoroughly responded to the needs of the citizens and soldiery.

While hat making began far back in the annals of this State, the number of active hat mills may seem comparatively small when the population and its needs in the hat line is considered. In Philadelphia, there are but a limited number of mills of importance engaged in the actual fabrication of wool hats for popular trade. At Reading, however, the hat industry is well centred, nine wool hat factories being reported for the year 1899. At the village known as Mohn's Store (Reading being the freight and telegraph address), there were four wool hat factories reported, the output of all these being sold through a leading New York house. Including Mohn's Store, the Reading industry may be said to comprise thirteen hat plants. No other town in the United States showed so many factories at that time.

Philadelphia is famous for the high character of its fur hats. It produces indeed, the very finest fur hats of the present day, but as the raw material for this particular branch is wholly imported, the fur hat industry has only a collateral relation to the woolen industry proper. In point of numbers there are more wool hat plants in and around Reading than in the city of Philadelphia, but in the latter city, exclusive of dealers in hats and caps, there are a goodly number of firms classified as interested in actual manufacture. These are subdivided as follows: Hat and cap materials (either makers or handlers), eight; hat block manufacturers, four; hat manufacturers, fifty-three; hat renovators, nine.

When to the above are added the many establishments handling



Finishing Department, Fur and Felt Hats.

hats and caps at wholesale and retail, it will be seen that an industry of large proportions exists.

Philadelphia fur hats find a sale in foreign countries and each year brings an increase in the export trade.

It should be explained that while fifty-three firms are indicated as hat manufacturers in Philadelphia, in reality no such number of actual hat making firms exist, and probably twenty firms only are actual fabricators of hats, the other firms so classified being converters or engaged on some special branch of the industry.



COMPARATIVE STATISTICS OF MANUFACTURES. 1892 SERIES.

DAYS IN OPERATION.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

NOTE.—(In this table the average number of days of employment by the same establishments for each of the years 1892, 1893, 1894, 1895, 1896, 1897, 1898 and 1899, is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1892. Forty-four industries, representing 354 establishments, are considered.)

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
PIG IRON.				
1892,	13	321	....	....
1893,	13	286	—35	....
1894,	13	301	+15	....
1895,	13	327	+26	....
1896,	13	293	—34	....
1897,	13	319	+26	....
1898,	13	344	+25	....
1899,	13	322	—22	+1
ROLLING MILLS—GENERAL PRODUCT.				
1892,	32	314	....	....
1893,	32	307	—7	....
1894,	32	300	—7	....
1895,	32	310	+10	....
1896,	32	308	—2	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
ROLLING MILLS—GENERAL PRODUCT—Continued.				
1897,	32	311	+3	....
1898,	32	321	+10	....
1899,	32	324	+3	+10
IRON AND STEEL SHEETS AND PLATES.				
1892,	14	290	....	....
1893,	14	243	—47	....
1894,	14	267	+24	....
1895,	14	307	+40	....
1896,	14	258	—49	....
1897,	14	271	+13	....
1898,	14	290	+19	....
1899,	14	294	+4	+4
PLATE AND BAR.				
1892,	3	250	....	....
1893,	3	198	—52	....
1894,	3	232	+34	....
1895,	3	257	+25	....
1896,	3	229	—28	....
1897,	3	285	+56	....
1898,	3	300	+15	....
1899,	3	302	+2	+52

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
STEEL.				
1892,	13	281	....	....
1893,	13	271	—11	....
1894,	13	272	+2	....
1895,	13	279	+7	....
1896,	13	219	—60	....
1897,	13	271	+52	....
1898,	13	282	+11	....
1899,	13	285	+3	+4
ARCHITECTURAL CAST AND WROUGHT IRON WORK.				
1892,	4	307	....	....
1893,	4	308	+1	....
1894,	4	307	—1	....
1895,	4	306	—1	....
1896,	4	305	—1	....
1897,	4	304	—1	....
1898,	4	306	+2	....
1899,	4	305	—1	—2
IRON FORGING.				
1892,	4	262	....	....
1893,	4	244	—18	....
1894,	4	296	+52	....
1895,	4	289	—7	....
1896,	4	246	—43	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
IRON FORGING—Continued.				
1897,	4	267	+21	....
1898,	4	293	+26	....
1899,	4	295	+2	+33
NAILS AND SPIKES.				
1892,	10	256	....	....
1893,	10	230	—26	....
1894,	10	228	—2	....
1895,	10	220	—8	....
1896,	10	205	—15	....
1897,	10	243	+38	....
1898,	10	205	—38	....
1899,	10	229	+24	—27
NUTS AND BOLTS.				
1892,	2	306	....	....
1893,	2	305	—1	....
1894,	2	288	—17	....
1895,	2	291	+3	....
1896,	2	298	+7	....
1897,	2	304	+6	....
1898,	2	306	+2	....
1899,	2	304	—2	—2
PIPES AND TUBES.				
1892,	4	267	....	....
1893,	4	260	—7	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
PIPES AND TUBES—Continued.				
1894,	4	268	+8	....
1895,	4	288	+20	....
1896,	4	296	+8	....
1897,	4	278	—18	....
1898,	4	284	+6	....
1899,	4	279	—5	+12
IRON FOUNDRIES AND MACHINE WORKS.				
1892,	25	301	....	....
1893,	25	279	—22	....
1894,	25	282	+3	....
1895,	25	299	+17	....
1896,	25	289	—10	....
1897,	25	298	+9	....
1898,	25	300	+2	....
1899,	25	305	+5	+4
STOVES, RANGES, HEATERS, ETC.				
1892,	9	284	....	....
1893,	9	272	—12	....
1894,	9	210	—62	....
1895,	9	229	+19	....
1896,	9	222	—7	....
1897,	9	236	+14	....
1898,	9	246	+10	....
1899,	9	247	+1	—37

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
HARDWARE.				
1892,	4	295	....	....
1893,	4	249	—46	....
1894,	4	205	—44	....
1895,	4	260	+55	....
1896,	4	260	....	....
1897,	4	261	+1	....
1898,	4	233	—28	....
1899,	4	268	+35	—27
MALLEABLE IRON.				
1892,	2	302	....	....
1893,	2	262	—40	....
1894,	2	247	—15	....
1895,	2	272	+25	....
1896,	2	270	—2	....
1897,	2	273	+3	....
1898,	2	292	+19	....
1899,	2	292	....	—10
SAWS, EDGE TOOLS, ETC.				
1892,	5	302	....	....
1893,	5	284	—18	....
1894,	5	286	+2	....
1895,	5	294	+8	....
1896,	5	279	—15	....
1897,	5	274	—5	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
SAWS, EDGE TOOLS, ETC—Continued				
1898,	5	299	+25	....
1899,	5	301	+2	—1
METAL AND METALLIC GOODS.				
1892,	8	321	....	....
1893,	8	282	—39	....
1894,	8	288	+6	....
1895,	8	311	+23	....
1896,	8	304	—7	....
1897,	8	288	—16	....
1898,	8	309	+21	....
1899,	8	324	+15	+3
LOCOMOTIVES AND ENGINES.				
1892,	14	305	....	....
1893,	14	284	—21	....
1894,	14	267	—17	....
1895,	14	292	+25	....
1896,	14	291	—1	....
1897,	14	295	+4	....
1898,	14	301	+6	....
1899,	14	306	+5	+1
ENGINES AND BOILERS.				
1892,	6	323	....	....
1893,	6	289	—34	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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ENGINES AND BOILERS—Continued.

1894,	6	298	+9
1895,	6	292	—6
1896,	6	291	—1
1897,	6	297	+6
1898,	6	303	+6	....
1899,	6	303	....	—20

BOILERS.

1892,	7	277	....	....
1893,	7	250	—27	....
1894,	7	220	—30	....
1895,	7	205	—15	....
1896,	7	209	+4	....
1897,	7	248	+39	....
1898,	7	277	+29	....
1899,	7	307	+30	+30

BRIDGES.

1892,	4	310	....	....
1893,	4	305	—5	....
1894,	4	305	....	....
1895,	4	303	—2	....
1896,	4	285	—18	....
1897,	4	305	+20	....
1898,	4	304	—1	....
1899,	4	284	—20	—26

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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CAR SPRINGS.

1892,	1	312
1893,	1	312
1894,	1	255	—57
1895,	1	277	+22
1896,	1	255	—22
1897,	1	244	—11
1898,	1	286	+42	....
1899,	1	300	+14	—12

CAR COUPLERS.

1892,	1	310	....	....
1893,	1	248	—62	....
1894,	1	203	—45	....
1895,	1	285	+82	....
1896,	1	303	+18	....
1897,	1	303	....	....
1898,	1	303	....	....
1899,	1	303	....	—7

CARS AND CAR WHEELS.

1892,	8	301	....	....
1893,	8	282	—19	....
1894,	8	261	—21	....
1895,	8	303	+42	....
1896,	8	284	—19	....
1897,	8	288	+4	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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CARS AND CAR WHEELS—Continued.

1898,	8	297	+9
1899,	8	304	+7	+3

WINDOW GLASS, BOTTLE AND TABLE GOODS.

1892,	17	253	....	....
1893,	17	195	—58	....
1894,	17	261	+66	....
1895,	17	241	—20	....
1896,	17	229	—12	....
1897,	17	268	+39	....
1898,	17	271	+3	....
1899,	17	264	—7	+11

SHIP BUILDING.

1892,	1	310	....	....
1893,	1	309	—1	....
1894,	1	310	+1	....
1895,	1	307	—3	....
1896,	1	307	....	....
1897,	1	310	+3	....
1898,	1	307	—3	....
1899,	1	302	—5	—8

PIANOS AND ORGANS.

1892,	2	303	....	....
1893,	2	280	—23	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase (+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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PIANOS AND ORGANS—Continued.

1894,	2	259	—21
1895,	2	290	+31
1896,	2	298	+7
1897,	2	298
1898,	2	296	—2	....
1899,	2	300	+1	—3

RUBBER BOOTS AND SHOES.

1892,	1	250	....	....
1893,	1	230	—20	....
1894,	1	248	+18	....
1895,	1	271	+23	....
1896,	1	244	—27	....
1897,	1	222	—22	....
1898,	1	244	+22	....
1899,	1	243	—1	—7

CARBONS.

1892,	1	300	....	....
1893,	1	300	....	....
1894,	1	300	....	....
1895,	1	300	....	....
1896,	1	310	+10	...
1897,	1	310	....	....
1898,	1	310	....	....
1899,	1	290	—20	—10

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
CARPETS.				
1892,	24	280	....	....
1893,	24	218	—62	....
1894,	24	259	+41	....
1895,	24	277	+18	....
1896,	24	263	—14	....
1897,	24	291	+28	....
1898,	24	286	—5	....
1899,	24	299	+13	+19
WOOLEN YARNS.				
1892,	10	299	....	....
1893,	10	245	—54	....
1894,	10	277	+32	....
1895,	10	293	+16	....
1896,	10	269	—24	....
1897,	10	296	+27	....
1898,	10	274	—22	....
1899,	10	274	....	—25
COTTON YARNS.				
1892,	3	296	....	....
1893,	3	250	—46	....
1894,	3	261	+11	....
1895,	3	288	+27	....
1896,	3	276	—12	....
1897,	3	297	+21	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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COTTON YARNS—Continued.

1898,	3	295	—2
1899,	3	306	+11	+10

WORSTED YARNS.

1892,	3	300
1893,	3	199	—101	....
1894,	3	277	+78	....
1895,	3	301	+24	....
1896,	3	246	—55	....
1897,	3	288	+42	....
1898,	3	256	—32	....
1899,	3	290	+34	—10

MISCELLANEOUS YARNS.

1892,	9	302	....	....
1893,	9	252	—50	....
1894,	9	262	+10	....
1895,	9	284	+22	....
1896,	9	214	—70	....
1897,	9	283	+69	....
1898,	9	263	—20	....
1899,	9	275	+12	—27

WOOLEN GOODS.

1892,	16	299	....	....
1893,	16	245	—54	....
1894,	16	278	+33	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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WOOLEN GOODS—Continued.

1895,	16	298	+20
1896,	16	274	—24
1897,	16	290	+16
1898,	16	289	—1
1899,	16	287	—2	—12

COTTON GOODS.

1892,	17	303	....	....
1893,	17	249	—54	....
1894,	17	246	—3	....
1895,	17	285	+39	....
1896,	17	258	—27	....
1897,	17	293	+35	....
1898,	17	298	+5	....
1899,	17	299	+1	—4

COTTON AND WOOLEN GOODS.

1892,	12	301	....	....
1893,	12	255	—46	....
1894,	12	258	+3	....
1895,	12	265	+7	....
1896,	12	220	—45	....
1897,	12	270	+50	....
1898,	12	272	+2	....
1899,	12	274	+2	—27

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
WORSTED GOODS.				
1892,	3	310	....	....
1893,	3	222	—88	....
1894,	3	237	+15	....
1895,	3	265	+28	....
1896,	3	220	—45	....
1897,	3	289	+69	....
1898,	3	273	—16	....
1899,	3	295	+22	—15
KNIT GOODS.				
1892,	5	313	....	....
1893,	5	278	—35	....
1894,	5	254	—24	....
1895,	5	283	+29	....
1896,	5	261	—22	....
1897,	5	271	+10	....
1898,	5	253	—18	....
1899,	5	282	+29	—31
CHENILLE GOODS.				
1892,	5	322	....	....
1893,	5	295	—27	....
1894,	5	299	+4	....
1895,	5	300	+1	....
1896,	5	291	—9	....
1897,	5	301	+10	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
CHENILLE GOODS—Continued,				
1898,	5	302	+1	....
1899,	5	292	—10	—30
MIXED TEXTILES.				
1892,	9	303	....	....
1893,	9	290	—13	....
1894,	9	289	—1	....
1895,	9	298	+9	....
1896,	9	282	—16	....
1897,	9	282	....	....
1898,	9	300	+18	....
1899,	9	300	....	—3
TAPESTRY AND TABLE COVERS.				
1892,	3	302	....	....
1893,	3	291	—11	....
1894,	3	300	+9	....
1895,	3	295	—5	....
1896,	3	289	—6	....
1897,	3	291	+2	....
1898,	3	291	....	....
1899,	3	277	—14	—25
HOSIERY.				
1892,	13	296	....	....
1893,	13	261	—35	....
1894,	13	273	+12	....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION BY SAME ESTABLISHMENTS FOR EACH OF THE YEARS 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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HOSIERY—Continued.

1895,	13	294	+21
1896,	13	288	—6
1897,	13	288
1898,	13	279	—9
1899,	13	280	+1	—16

HOSIERY AND KNIT GOODS.

1892,	3	300	....	....
1893,	3	293	—7	....
1894,	3	300	+7	....
1895,	3	272	—28	....
1896,	3	289	+17	....
1897,	3	300	+11	....
1898,	3	300	....	....
1899,	3	300	....	....

SILK BROAD GOODS.

1892,	4	304	....	....
1893,	4	247	—57	....
1894,	4	292	+45	....
1895,	4	303	+11	....
1896,	4	274	—29	....
1897,	4	303	+29	....
1898,	4	292	—11	....
1899,	4	301	+9	—3

PERSONS EMPLOYED.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

(In this table the average number of persons employed by the same establishments for each of the years 1892, 1893, 1894, 1895, 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1892. Forty-four industries, representing 354 establishments, are considered.)

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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PIG IRON.

1892,	13	2,668
1893,	13	2,222	—446
1894,	13	1,751	—471
1895,	13	2,269	+518
1896,	13	2,242	—27
1897,	13	1,904	—338	.....
1898,	13	2,124	+220	.....
1899,	13	3,015	+891	+347

ROLLING MILLS—GENERAL
PRODUCT.

1892,	32	35,368	.....	.....
1893,	32	32,695	—2,663	.....
1894,	32	30,120	—2,575	.....
1895,	32	35,123	+5,003	.....
1896,	32	34,755	—368	.....
1897,	32	35,579	+824	.....
1898,	32	40,175	+4,596	.....
1899,	32	43,533	+3,358	+8,165

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1892.
IRON AND STEEL SHEETS AND PLATES.				
1892,	14	5,089	.....	.....
1893,	14	4,590	—499	.....
1894,	14	4,294	—296	.....
1895,	14	4,869	+575	.....
1896,	14	4,522	—347	.....
1897,	14	5,205	+683	.....
1898,	14	6,524	+1,319	.....
1899,	14	8,327	+1,803	+3,238
PLATE AND BAR.				
1892,	3	3,269	.....	.....
1893,	3	2,330	—939	.....
1894,	3	1,735	—595	.....
1895,	3	2,263	+528	.....
1896,	3	1,295	—968	.....
1897,	3	1,360	+65	.....
1898,	3	2,372	+1,012	.....
1899,	3	2,709	+337	—560
STEEL.				
1892,	13	13,075	.....	.....
1893,	13	10,585	—2,490	.....
1894,	13	9,778	—807	.....
1895,	13	12,138	+2,360	.....
1896,	13	10,058	—2,080	.....

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Number of persons employed.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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STEEL—Continued.

1897,	13	10,361	+303
1898,	13	12,176	+1,815
1899,	13	14,578	+2,402	+1,503

ARCHITECTURAL CAST AND WROUGHT IRON WORKS.

1892,	4	1,350	.....	.....
1893,	4	1,202	—148	.....
1894,	4	976	—226	.....
1895,	4	1,438	+462	.....
1896,	4	1,298	—140	.....
1897,	4	1,086	—212	.....
1898,	4	1,435	+349	.....
1899,	4	1,755	+320	+405

IRON FORGING.

1892,	4	583	.....	.....
1893,	4	507	—76	.....
1894,	4	469	—38	.....
1895,	4	594	+125	.....
1896,	4	569	—25	.....
1897,	4	533	—36	.....
1898,	4	668	+135	.....
1899,	4	670	+2	+87

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
NAILS AND SPIKES.				
1892,	10	3,015	.....	.....
1893,	10	2,840	—175	.....
1894,	10	2,305	—535	.....
1895,	10	2,422	+117	.....
1896,	10	1,891	—531	.....
1897,	10	1,714	—177	.....
1898,	10	2,099	+385	.....
1899,	10	2,360	+261	—655
NUTS AND BOLTS.				
1892,	2	615	.....	.....
1893,	2	695	+80	.....
1894,	2	560	—135	.....
1895,	2	638	+78	.....
1896,	2	530	—108	.....
1897,	2	576	+46	.....
1898,	2	758	+182	.....
1899,	2	955	+197	+340
PIPES AND TUBES.				
1892,	4	1,336	.....	.....
1893,	4	1,311	—25	.....
1894,	4	1,263	—48	.....
1895,	4	1,454	+119	.....
1896,	4	1,326	—128	.....
1897,	4	1,357	+31	.....

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1892.
PIPES AND TUBES—Continued.				
1898,	4	1,612	+255	.....
1899,	4	1,720	+108	+384
IRON FOUNDRIES AND MA- CHINE WORKS.				
1892,	25	3,554	.....	.....
1893,	25	3,097	—457	.....
1894,	25	2,603	—494	.....
1895,	25	3,066	+463	.....
1896,	25	2,794	—272	.....
1897,	25	3,002	+208	.....
1898,	25	3,417	+415	.....
1899,	25	4,091	+674	+537
STOVES, RANGERS, HEATERS, ETC.				
1892,	9	1,243	.....	.....
1893,	9	1,361	+118	.....
1894,	9	1,238	—123	.....
1895,	9	1,285	+47	.....
1896,	9	1,296	+11	.....
1897,	9	1,278	—18	.....
1898,	9	1,310	+32	.....
1899,	9	1,304	—6	+61

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
HARDWARE.				
1892,	4	1,560	.....	.....
1893,	4	1,544	—16	.....
1894,	4	1,464	—80	.....
1895,	4	1,586	+122	.....
1896,	4	1,464	—122	.....
1897,	4	1,569	+105	.....
1898,	4	1,695	+126	.....
1899,	4	1,926	+231	+366
MALLEABLE IRON.				
1892,	2	401	.....	.....
1893,	2	362	—39	.....
1894,	2	293	—69	.....
1895,	2	367	+74	.....
1896,	2	445	+78	.....
1897,	2	431	—14	.....
1898,	2	697	+266	.....
1899,	2	746	+49	+345
SAWS, EDGE TOOLS, ETC.				
1892,	5	2,448	.....	.....
1893,	5	2,210	—238	.....
1894,	5	1,965	—245	.....
1895,	5	2,188	+223	.....
1896,	5	2,171	—17	.....

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
SAWS, EDGE TOOLS, ETC.—Con- tinued.				
1897,	5	2,126	—45	.....
1898,	5	2,549	+423	.....
1899,	5	3,079	+530	+631
METAL AND METALLIC GOODS.				
1892,	8	1,726	.....	.....
1893,	8	1,622	—104	.....
1894,	8	1,500	—122	.....
1895,	8	1,704	+204	.....
1896,	8	1,640	—64	.....
1897,	8	1,515	—125	.....
1898,	8	1,609	+94	.....
1899,	8	1,809	+200	+83
LOCOMOTIVES AND ENGINES.				
1892,	14	11,591	.....	.....
1893,	14	11,644	+53	.....
1894,	14	8,441	—3,203	.....
1895,	14	9,363	+922	.....
1896,	14	10,228	+865	.....
1897,	14	10,038	—190	.....
1898,	14	12,397	+2,359	.....
1899,	14	14,795	+2,398	+3,204

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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ENGINES AND BOILERS.

1892,	6	1,635
1893,	6	1,384	—251
1894,	6	992	—392
1895,	6	1,226	+234
1896,	6	1,326	+100	.....
1897,	6	1,205	—121	.....
1898,	6	1,269	+64	.....
1899,	6	1,409	+140	—226

BOILERS.

1892,	7	762	.....	.....
1893,	7	722	—40	.....
1894,	7	691	—31	.....
1895,	7	694	+3	.....
1896,	7	747	+53	.....
1897,	7	652	—95	.....
1898,	7	810	+158	.....
1899,	7	512	—298	—250

BRIDGES.

1892,	4	1,217	.....	.....
1893,	4	971	—246	.....
1894,	4	647	—324	.....
1895,	4	970	+323	.....
1896,	4	738	—232	.....

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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BRIDGES—Continued.

1897,	4	630	—108
1898,	4	757	+127
1899,	4	975	+218	—242

CAR SPRINGS.

1892,	1	207	.....	.....
1893,	1	187	—20	.....
1894,	1	108	—79	.....
1895,	1	107	—1	.....
1896,	1	115	+8	.....
1897,	1	125	+10	.....
1898,	1	140	+15	.....
1899,	1	177	+37	—30

CAR COUPLERS.

1892,	1	663	.....	.....
1893,	1	570	—93	.....
1894,	1	416	—154	.....
1895,	1	606	+190	.....
1896,	1	976	+370	.....
1897,	1	813	—163	.....
1898,	1	783	—30	.....
1899,	1	905	+122	+242

CARS AND CAR WHEELS.

1892,	8	3,566	.....	.....
1893,	8	3,144	—422	.....

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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CARS AND CAR WHEELS—Con-
tinued.

1894,	8	2,830	—314
1895,	8	2,887	+57
1896,	8	2,841	—16
1897,	8	2,661	—189
1898,	8	3,572	+911	.....
1899,	8	3,184	—388	—382

WINDOW GLASS, BOTTLE AND
TABLE GOODS.

1892,	17	6,512	.....	.....
1893,	17	5,993	—519	.....
1894,	17	5,152	—841	.....
1895,	17	6,195	+1,043	.....
1896,	17	4,868	—1,327	.....
1897,	17	4,993	+125	.....
1898,	17	5,572	+579	.....
1899,	17	5,979	+407	—533

SHIP BUILDING.

1892,	1	440	.....	.....
1893,	1	583	+143	.....
1894,	1	395	—188	.....
1895,	1	336	—59	.....
1896,	1	516	+180	.....
1897,	1	388	—128	.....
1898,	1	810	+122	.....
1899,	1	915	+105	+175

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Number of persons employed.	Increase(+) or decrease(—) as compared with the preceding year.	Increase(+) or decrease(—) 1899 as compared with 1892.
PIANOS AND ORGANS.				
1892,	2	162	.....	.....
1893,	2	162	.....	.....
1894,	2	162	.....	.....
1895,	2	142	—20	.....
1896,	2	126	—16	.....
1897,	2	125	—1	.....
1898,	2	127	+2	.....
1899,	2	120	—7	—42
RUBBER BOOTS AND SHOES.				
1892,	1	325	.....	.....
1893,	1	350	+25	.....
1894,	1	350	.....	.....
1895,	1	398	+48	.....
1896,	1	359	—39	.....
1897,	1	375	+16	.....
1898,	1	400	+25	.....
1899,	1	500	+100	+175
CARBONS.				
1892,	1	48	.....	.....
1893,	1	50	+2	.....
1894,	1	55	+5	.....
1895,	1	49	—6	.....
1896,	1	50	+1	.....

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as com pared with 1892.
CARBONS—Continued.				
1897,	1	50	.....	.....
1898,	1	50	.....	.....
1899,	1	38	—12	—10
CARPETS.				
1892,	24	6,750	.....	.....
1893,	24	5,660	—1,090	.....
1894,	24	5,326	—334	.....
1895,	24	5,907	+581	.....
1896,	24	5,362	—545	.....
1897,	24	5,496	+134	.....
1898,	24	5,123	—373	.....
1899,	24	6,178	+1,055	—572
WOOLEN YARNS.				
1892,	10	1,865	.....	.....
1893,	10	1,471	—394	.....
1894,	10	1,148	—323	.....
1895,	10	1,616	+468	.....
1896,	10	1,331	—285	.....
1897,	10	1,476	+145	.....
1898,	10	1,513	+37	.....
1899,	10	1,706	+193	—159
COTTON YARNS.				
1892,	3	259	.....	.....
1893,	3	233	—26	.....

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
COTTON YARNS—Continued.				
1894,	3	270	+37	.....
1895,	3	294	+24	.....
1896,	3	220	—74	.....
1897,	3	255	+35	.....
1898,	3	267	+12	.....
1899,	3	264	—3	+5
WORSTED YARNS.				
1892,	3	1,002	.....	.....
1893,	3	708	—294	.....
1894,	3	722	+14	.....
1895,	3	1,006	+284	.....
1896,	3	665	—341	.....
1897,	3	728	+63	.....
1898,	3	713	—15	.....
1899,	3	838	+125	—164
MISCELLANEOUS YARNS.				
1892,	9	544	.....	.....
1893,	9	477	—67	.....
1894,	9	418	—59	.....
1895,	9	445	+27	.....
1896,	9	378	—67	.....
1897,	9	422	+44	.....
1898,	9	393	—29	.....
1899,	9	453	+60	—91

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Number of persons employed.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1892.
WOOLEN GOODS.				
1892,	16	5,573	.....	.....
1893,	16	4,926	—647	.....
1894,	16	4,856	—70	.....
1895,	16	5,405	+549	.....
1896,	16	3,933	—1,472	.....
1897,	16	4,121	+188	.....
1898,	16	4,136	+15	.....
1899,	16	4,350	+214	—1,223
COTTON GOODS.				
1892,	17	4,308	.....	.....
1893,	17	3,874	—434	.....
1894,	17	3,687	—187	.....
1895,	17	3,925	+238	.....
1896,	17	3,894	—31	.....
1897,	17	4,173	+279	.....
1898,	17	4,246	+73	.....
1899,	17	4,296	+50	—12
COTTON AND WOOLEN GOODS.				
1892,	12	1,397	.....	.....
1893,	12	1,260	—137	.....
1894,	12	1,248	—12	.....
1895,	12	1,370	+122	.....
1896,	12	1,182	—188	.....

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Number of persons employed.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
COTTON AND WOOLEN GOODS				
—Continued.				
1897,	12	1,162	—20	.....
1898,	12	1,320	+158	.....
1899,	12	1,262	—58	—135
WORSTED GOODS.				
1892,	3	661	.....	.....
1893,	3	386	—275	.....
1894,	3	461	+75	.....
1895,	3	547	+86	.....
1896,	3	389	—158	.....
1897,	3	610	+221	.....
1898,	3	583	—27	.....
1899,	3	597	+14	—64
KNIT GOODS.				
1892,	5	989	.....	.....
1893,	5	973	—16	.....
1894,	5	807	—166	.....
1895,	5	1,051	+244	.....
1896,	5	973	—78	.....
1897,	5	1,010	+37	.....
1898,	5	980	—30	.....
1899,	5	1,004	+24	+14

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1892.
CHENILLE GOODS.				
1892,	5	1,577	.....	.....
1893,	5	1,153	—424	.....
1894,	5	1,176	+23	.....
1895,	5	1,189	+13	.....
1896,	5	1,378	+189	.....
1897,	5	1,542	+164	.....
1898,	5	1,575	+33	.....
1899,	5	1,614	+39	+37
MIXED TEXTILES.				
1892,	9	2,024	.....	.....
1893,	9	1,688	—336	.....
1894,	9	1,847	+159	.....
1895,	9	2,028	+181	.....
1896,	9	1,894	—134	.....
1897,	9	2,025	+131	.....
1898,	9	2,120	+95	.....
1899,	9	2,431	+311	+407
TAPESTRY AND TABLE COVERS.				
1892,	3	225	.....	.....
1893,	3	187	—38	.....
1894,	3	229	+42	.....
1895,	3	326	+97	.....
1896,	3	296	—30	.....

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Number of persons employed.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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TAPESTRY AND TABLE COVERS—Continued.

1897,	3	393	+97
1898,	3	462	+69
1899,	3	492	+30	+267

HOSIERY.

1892,	13	2,944	.....	.....
1893,	13	2,647	—297	.....
1894,	13	2,589	—58	.....
1895,	13	3,329	+740	.....
1896,	13	2,708	—621	.....
1897, ..	13	3,012	+304	.....
1898,	13	3,212	+200	.....
1899,	13	3,204	—8	+260

HOSIERY AND KNIT GOODS.

1892,	3	595	.....	.....
1893,	3	610	+15	.....
1894,	3	600	—10	.....
1895,	3	628	+28	.....
1896,	3	453	—175	.....
1897,	3	538	+85	.....
1898,	3	471	—67	.....
1899,	3	456	—15	—139

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF PERSONS EMPLOYED, SKILLED AND UNSKILLED, BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Number of persons employed.	Increase (+) or decrease (—) as com- pared with the prece- ding year.	Increase (+) or de- crease (—) 1899 as compared with 1892.
SILK BROAD GOODS.				
1892,	4	1,736	.....	.....
1893,	4	1,092	—644	.....
1894,	4	1,446	+354	.....
1895,	4	1,918	+472	.....
1896,	4	1,850	—68	.....
1897,	4	2,667	+817	.....
1898,	4	2,964	+297	.....
1899,	4	3,191	+227	+1,455

AGGREGATE WAGES PAID.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

(In this table the aggregate wages paid by the same establishments for each of the years 1892, 1893, 1894, 1895, 1896, 1897, 1898 and 1899, is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1892. Forty-four industries, representing 354 establishments, are considered.)

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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PIG IRON.

1892,	13	\$1,222,091
1893,	13	968,289	—\$253,802
1894,	13	658,393	—309,896
1895,	13	1,060,012	+401,619
1896,	13	947,503	—112,509	.....
1897,	13	797,839	—149,664	.....
1898,	13	950,759	+152,920	.....
1899,	13	1,502,193	+551,434	+\$280,102

ROLLING MILLS—GENERAL PRODUCT.

1892,	32	19,909,005	.....	.....
1893,	32	17,884,919	—2,024,086	.....
1894,	32	14,537,538	—3,347,381	.....
1895,	32	17,620,324	+3,082,786	.....
1896,	32	17,829,462	+209,138	.....
1897,	32	17,159,786	—669,676	.....
1898,	32	20,005,631	+2,845,845	.....
1899,	32	26,368,594	+6,362,963	+6,459,589

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
IRON AND STEEL SHEETS AND PLATES.				
1892,	14	\$3,225,444	.....	.....
1893,	14	2,658,514	—\$566,930	.....
1894,	14	2,251,379	—407,135	.....
1895,	14	2,728,209	+476,830	.....
1896,	14	2,390,653	—337,556	.....
1897,	14	2,569,347	+178,694	.....
1898,	14	3,402,674	+833,327	.....
1899,	14	4,781,188	+1,378,514	+\$1,555,741
PLATE AND BAR.				
1892,	3	1,685,275	.....	.....
1893,	3	1,150,276	—534,999	.....
1894,	3	696,970	—453,306	.....
1895,	3	864,145	+167,175	.....
1896,	3	596,165	—267,980	.....
1897,	3	626,280	+30,115	.....
1898,	3	1,082,343	+456,063	.....
1899,	3	1,391,372	+309,029	—293,903
STEEL.				
1892,	13	6,601,181	.....	.....
1893,	13	5,234,148	—1,367,033	.....
1894,	13	4,492,128	—742,020	.....
1895,	13	5,872,084	+1,379,956	.....
1896,	13	4,592,017	—1,280,067	.....

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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STEEL—Continued.

1897,	13	\$4,918,524	+\$326,507
1898,	13	5,828,123	+909,599
1899,	13	7,540,393	+1,712,270	+\$939,212

ARCHITECTURAL CAST AND WROUGHT IRON WORK.

1892,	4	810,020	.....	.....
1893,	4	699,209	—110,811	.....
1894,	4	488,190	—211,019	.....
1895,	4	786,657	+298,467	.....
1896,	4	718,716	—67,941	.....
1897,	4	597,775	—120,941	.....
1898,	4	771,191	+173,416	.....
1899,	4	971,114	+199,923	+161,694

IRON FORGING.

1892,	4	379,070	.....	.....
1893,	4	302,651	—76,419	.....
1894,	4	237,457	—65,194	.....
1895,	4	311,275	+73,818	.....
1896,	4	295,092	—16,183	.....
1897,	4	281,250	—13,842	.....
1898,	4	365,737	+84,487	.....
1899,	4	373,752	+8,015	—5,318

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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NAILS AND SPIKES.

1892,	10	\$1,294,034
1893,	10	1,130,151	—\$163,883
1894,	10	770,354	—359,797
1895,	10	848,142	+77,778	.....
1896,	10	527,201	—320,941	.....
1897,	10	593,927	+66,726	.....
1898,	10	556,145	—37,782	.....
1899,	10	800,175	+241,030	—\$493,859

NUTS AND BOLTS.

1892,	2	238,112	.....	.....
1893,	2	235,777	—2,335	.....
1894,	2	208,854	—26,923	.....
1895,	2	257,202	+48,348	.....
1896,	2	211,195	—46,007	.....
1897,	2	200,064	—11,131	.....
1898,	2	291,593	+91,529	.....
1899,	2	520,681	+229,088	+282,569

PIPES AND TUBES.

1892,	4	575,531	.....	.....
1893,	4	519,129	—56,402	.....
1894,	4	513,268	—5,861	.....
1895,	4	646,083	+132,815	.....
1896,	4	658,449	+12,366	.....

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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PIPES AND TUBES—Continued.

1897,	4	\$642,407	—\$16,042
1898,	4	769,577	+127,170
1899,	4	831,654	+62,077	+\$256,123

IRON FOUNDRIES AND MACHINE WORKS.

1892,	25	1,967,645	.....	.....
1893,	25	1,533,465	—434,180	.....
1894,	25	1,313,309	—220,156	.....
1895,	25	1,571,056	+257,747	.....
1896,	25	1,384,299	—186,757	.....
1897,	25	1,513,104	+128,805	.....
1898,	25	1,800,212	+287,108	.....
1899,	25	2,198,285	+398,073	+230,640

STOVES, RANGERS, HEATERS, ETC.

1892,	9	630,622	.....	.....
1893,	9	674,514	+43,892	.....
1894,	9	526,222	—148,292	.....
1895,	9	575,802	+49,580	.....
1896,	9	559,614	—16,188	.....
1897,	9	574,595	+14,981	.....
1898,	9	595,133	+20,538	.....
1899,	9	635,413	+40,280	+\$4,791

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
HARDWARE.				
1892,	4	\$608,700	.....	.....
1893,	4	581,468	—\$27,232	.....
1894,	4	494,538	—86,930	.....
1895,	4	589,411	+94,873	.....
1896,	4	506,748	—82,663	.....
1897,	4	555,295	+48,547	.....
1898,	4	575,798	+20,503	.....
1899,	4	753,877	+178,079	+\$145,177
MALLEABLE IRON.				
1892,	2	207,159	.....	.....
1893,	2	167,644	—39,515	.....
1894,	2	129,634	—38,010	.....
1895,	2	185,490	+55,856	.....
1896,	2	206,976	+21,486	.....
1897,	2	208,714	+1,738	.....
1898,	2	341,962	+133,248	.....
1899,	2	389,287	+47,325	+182,128
SAWS, EDGE TOOLS, ETC.				
1892,	5	1,306,442	.....	.....
1893,	5	1,166,262	—140,180	.....
1894,	5	872,555	—293,707	.....
1895,	5	1,078,514	+205,959	.....
1896,	5	1,083,069	+4,555	.....

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) compared with 1892.
SAWS, EDGE TOOLS, ETC.—Continued.				
1897,	5	\$988,912	—\$94,157	.....
1898,	5	1,273,829	+284,917	.....
1899,	5	1,583,828	+309,999	+\$277,386
METAL AND METALLIC GOODS.				
1892,	8	833,385	.....	.....
1893,	8	738,036	—95,349	.....
1894,	8	675,524	—62,512	.....
1895,	8	829,877	+154,353	.....
1896,	8	812,633	—17,244	.....
1897,	8	712,676	—99,957	.....
1898,	8	762,480	+49,804	.....
1899,	8	896,108	+133,628	+62,723
LOCOMOTIVES AND ENGINES.				
1892,	14	6,941,946	.....	.....
1893,	14	6,528,803	—413,143	.....
1894,	14	4,032,489	—2,496,314	.....
1895,	14	5,231,956	+1,199,467	.....
1896,	14	5,402,517	+170,561	.....
1897,	14	5,398,050	—4,467	.....
1898,	14	7,149,884	+1,751,834	.....
1899,	14	8,797,896	+1,648,012	+1,855,950

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease(—) 1899 as compared with 1892.
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ENGINES AND BOILERS.

1892,	6	\$820,391
1893,	6	658,487	—\$161,904
1894,	6	521,260	—137,227
1895,	6	647,889	+126,629	.....
1896,	6	647,307	—582	.....
1897,	6	552,180	—95,127	.....
1898,	6	639,408	+87,228	.....
1899,	6	728,062	+88,654	—\$92,329

BOILERS.

1892,	7	394,594	.....	.....
1893,	7	285,385	—109,209	.....
1894,	7	220,692	—64,693	.....
1895,	7	253,044	+32,352	.....
1896,	7	231,665	—21,379	.....
1897,	7	236,863	+5,198	.....
1898,	7	298,175	+61,312	.....
1899,	7	237,840	—60,335	—156,754

BRIDGES.

1892,	4	532,673	.....	.....
1893,	4	413,517	—119,156	.....
1894,	4	262,240	—151,277	.....
1895,	4	450,391	+188,151	.....
1896,	4	293,005	—157,386	.....

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase (+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
BRIDGES—Continued.				
1897,	4	\$275,270	—\$17,735	.....
1898,	4	333,277	+58,007	.....
1899,	4	408,803	+75,526	—\$123,870
CAR SPRINGS.				
1892,	1	139,800	.....	.....
1893,	1	104,498	—35,302	.....
1894,	1	49,664	—54,834	.....
1895,	1	67,556	+17,892	.....
1896,	1	76,031	+8,475	.....
1897,	1	69,144	—6,887	.....
1898,	1	95,162	+26,018	.....
1899,	1	129,115	+33,953	—10,685
CAR COUPLERS.				
1892,	1	361,338	.....	.....
1893,	1	281,375	—79,963	.....
1894,	1	160,978	—120,397	.....
1895,	1	304,785	+143,807	.....
1896,	1	436,177	+131,392	.....
1897,	1	371,800	—64,377	.....
1898,	1	351,902	—19,898	.....
1899,	1	449,000	+97,098	+87,662
CARS AND CAR WHEELS.				
1892,	8	1,901,062	.....	.....
1893,	8	1,579,523	—321,539	.....

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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CARS AND CAR WHEELS—Continued.

1894,	8	\$1,292,310	—\$287,213
1895,	8	1,533,033	+240,723
1896,	8	1,363,150	—169,883	.....
1897,	8	1,335,463	—27,687	.....
1898,	8	1,912,759	+577,296	.....
1899,	8	1,763,251	—149,508	—\$137,811

WINDOW GLASS, BOTTLE AND TABLE GOODS.

1892,	17	3,013,108	.....	.....
1893,	17	2,209,369	—803,739	.....
1894,	17	2,219,127	+9,758	.....
1895,	17	2,198,916	—20,211	.....
1896,	17	1,903,683	—295,233	.....
1897,	17	2,257,805	+354,122	.....
1898,	17	2,525,933	+268,128	.....
1899,	17	2,726,527	+200,594	—286,581

SHIP BUILDING.

1892,	1	242,358	.....	.....
1893,	1	324,439	+82,081	.....
1894,	1	226,858	—97,581	.....
1895,	1	190,820	—36,038	.....
1896,	1	285,103	+94,283	.....
1897,	1	215,604	—69,499	.....
1898,	1	397,489	+181,885	.....
1899,	1	483,200	+85,711	+240,842

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
PIANOS AND ORGANS.				
1892,	2	\$53,972	.....	.....
1893,	2	50,583	—\$3,389	.....
1894,	2	46,187	—4,396	.....
1895,	2	49,644	+3,457	.....
1896,	2	51,392	+1,748	.....
1897,	2	52,502	+1,110	.....
1898,	2	54,027	+1,525	.....
1899,	2	53,303	—724	—\$669
RUBBER BOOTS AND SHOES.				
1892,	1	141,784	.....	.....
1893,	1	145,471	+3,687	.....
1894,	1	128,156	—17,315	.....
1895,	1	150,705	+22,549	.....
1896,	1	131,577	—19,128	.....
1897,	1	103,639	—27,938	.....
1898,	1	139,770	+36,131	.....
1899,	1	175,876	+36,106	+34,092
CARBONS.				
1892,	1	25,000	.....	.....
1893,	1	27,000	+2,000	.....
1894,	1	29,000	+2,000	.....
1895,	1	28,000	—1,000	.....
1896,	1	24,000	—4,000	.....
1897,	1	24,000	.....	.....

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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CARBONS—Continued.

1898,	1	\$24,000
1899,	1	20,240	—\$3,760	—\$4,760

CARPETS.

1892,	24	2,573,458
1893,	24	2,085,404	—488,054	.....
1894,	24	1,002,657	—1,082,747	.....
1895,	24	2,228,021	+1,225,364	.....
1896,	24	1,830,621	—397,400	.....
1897,	24	1,983,366	+152,745	.....
1898,	24	1,824,963	—158,403	.....
1899,	24	2,307,694	+482,731	—265,764

WOOLEN YARNS.

1892,	10	527,864	.....	.....
1893,	10	428,848	—99,016	.....
1894,	10	286,557	—142,291	.....
1895,	10	424,006	+137,449	.....
1896,	10	408,385	—15,621	.....
1897,	10	384,803	—23,582	.....
1898,	10	461,866	+77,063	.....
1899,	10	524,527	+62,661	—3,337

COTTON YARNS.

1892,	3	84,571	.....	.....
1893,	3	71,384	—13,187	.....

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
COTTON YARNS—Continued.				
1894,	3	\$70,983	—\$401	.....
1895,	3	89,806	+18,823	.....
1896,	3	63,476	—26,330	.....
1897,	3	78,009	+14,533	.....
1898,	3	82,051	+4,042	.....
1899,	3	87,040	+4,989	+2,469
WORSTED YARNS.				
1892,	3	298,181	.....	.....
1893,	3	211,833	—86,348	.....
1894,	3	201,584	—10,249	.....
1895,	3	278,890	+77,306	.....
1896,	3	157,080	—121,810	.....
1897,	3	201,321	+44,241	.....
1898,	3	175,310	—26,011	.....
1899,	3	239,566	+64,256	—58,615
MISCELLANEOUS YARNS.				
1892,	9	212,052	.....	.....
1893,	9	150,765	—61,287	.....
1894,	9	138,072	—12,693	.....
1895,	9	159,564	+21,492	.....
1896,	9	130,224	—29,340	.....
1897,	9	156,864	+26,640	.....
1898,	9	133,248	—23,616	.....
1899,	9	171,356	+38,108	—40,696

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
WOOLEN GOODS.				
1892,	16	\$1,953,364	.....	.....
1893,	16	1,527,984	—\$425,380	.....
1894,	16	1,388,781	—139,203	.....
1895,	16	1,694,440	+305,659	.....
1896,	16	1,199,111	—495,329	.....
1897,	16	1,363,041	+163,930	.....
1898,	16	1,384,116	+21,075	.....
1899,	16	1,498,231	+114,115	—\$455,133
COTTON GOODS.				
1892,	17	1,656,805	.....	.....
1893,	17	1,186,610	—470,195	.....
1894,	17	1,171,554	—15,056	.....
1895,	17	1,303,844	+132,290	.....
1896,	17	1,064,130	—239,714	.....
1897,	17	1,251,253	+187,123	.....
1898,	17	1,373,237	+121,984	.....
1899,	17	1,508,218	+134,981	—148,587
COTTON AND WOOLEN GOODS.				
1892,	12	483,504	.....	.....
1893,	12	390,597	—92,907	.....
1894,	12	362,164	—28,433	.....
1895,	12	420,075	+57,911	.....
1896,	12	338,900	—81,175	.....

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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COTTON AND WOOLEN GOODS
—Continued.

1897,	12	\$359,586	+\$20,686
1898,	12	416,500	+56,914
1899,	12	407,698	—8,802	—\$75,806

WORSTED GOODS.

1892,	3	239,858	.....	.....
1893,	3	135,561	—104,297	.....
1894,	3	158,743	+23,182	.....
1895,	3	192,633	+33,890	.....
1896,	3	132,290	—60,343	.....
1897,	3	256,513	+124,223	.....
1898,	3	244,146	—12,367	.....
1899,	3	242,183	—1,963	+2,325

KNIT GOODS.

1892,	5	286,648	.....	.....
1893,	5	255,438	—31,210	.....
1894,	5	205,732	—49,706	.....
1895,	5	288,841	+83,109	.....
1896,	5	228,053	—60,788	.....
1897,	5	247,615	+19,562	.....
1898,	5	247,184	—431	.....
1899,	5	288,434	+41,250	+1,786

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
CHENILLE GOODS.				
1892,	5	\$648,492	.....	.....
1893,	5	435,761	—\$212,731	.....
1894,	5	442,828	+7,067	.....
1895,	5	460,319	+17,491	.....
1896,	5	501,772	+41,453	.....
1897,	5	575,861	+74,089	.....
1898,	5	561,012	—14,849	.....
1899,	5	679,963	+118,951	+\$31,471
MIXED TEXTILES.				
1892,	9	712,059	.....	.....
1893,	9	520,683	—191,376	.....
1894,	9	531,680	+10,997	.....
1895,	9	615,095	+83,415	.....
1896,	9	559,443	—55,652	.....
1897,	9	591,656	+32,213	.....
1898,	9	632,258	+40,602	.....
1899,	9	765,896	+133,638	+53,837
TAPESTRY AND TABLE COVERS.				
1892,	3	94,620	.....	.....
1893,	3	68,484	—26,136	.....
1894,	3	91,722	+23,238	.....
1895,	3	124,723	+33,001	.....
1896,	3	115,266	—9,457	.....

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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TAPESTRY AND TABLE
COVERS—Continued.

1897,	3	\$161,275	+\$46,009
1898,	3	180,225	+18,950
1899,	3	189,321	+9,096	+\$94,701

HOSIERY.

1892,	13	770,891	.....	.....
1893,	13	660,803	—110,088	.....
1894,	13	567,411	—93,392	.....
1895,	13	863,884	+296,473	.....
1896,	13	632,065	—231,819	.....
1897,	13	773,370	+141,305	.....
1898,	13	807,402	+34,032	.....
1899,	13	809,834	+2,432	+38,943

HOSIERY AND KNIT GOODS.

1892,	3	197,312	.....	.....
1893,	3	186,860	—10,452	.....
1894,	3	191,806	+4,946	.....
1895,	3	179,494	—12,312	.....
1896,	3	105,220	—74,274	.....
1897,	3	148,908	+43,688	.....
1898,	3	134,120	—14,788	.....
1899,	3	142,663	+8,543	—54,649

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897,1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate amount of wages paid.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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SILK BROAD GOODS.

1892,	4	\$430,455
1893,	4	248,372	—\$182,083
1894,	4	362,119	+113,747
1895,	4	449,854	+87,735
1896,	4	470,930	+21,076	.....
1897,	4	632,685	+161,755	.....
1898,	4	724,004	+91,319	.....
1899,	4	805,682	+81,678	+\$375,227

AVERAGE YEARLY EARNINGS.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

(In this table the average yearly earnings in same establishments for each of the years 1892, 1893, 1894, 1895, 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1892. Forty-four industries, representing 354 establishments, are considered.)

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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PIG IRON.

1892,	13	\$477 92
1893,	13	446 14	—\$31 78
1894,	13	382 09	—64 05
1895,	13	483 66	+101 57
1896,	13	422 61	—61 05	.....
1897,	13	419 03	—3 58	.....
1898,	13	447 63	+28 60	.....
1899,	13	498 24	+50 61	+\$20 32

ROLLING MILLS—GENERAL
PRODUCT.

1892,	32	562 91	.....	.....
1893,	32	547 02	—15 89	.....
1894,	32	482 65	—64 37	.....
1895,	32	501 65	+19 00	.....
1896,	32	513 00	+11 35	.....
1897,	32	482 30	—30 70	.....
1898,	32	497 96	+15 66	.....
1899,	32	605 72	+107 76	+42 81

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
IRON AND STEEL SHEETS AND PLATES.				
1892,	14	\$633 81	.....	.....
1893,	14	579 19	—\$54 62	.....
1894,	14	524 31	—54 88	.....
1895,	14	560 32	+36 01	.....
1896,	14	528 67	—31 65	.....
1897,	14	493 63	—35 04	.....
1898,	14	521 56	+27 93	.....
1899,	14	574 18	+52 62	—\$59 63
PLATE AND BAR.				
1892,	3	515 53	.....	.....
1893,	3	493 68	—21 85	.....
1894,	3	401 71	—91 97	.....
1895,	3	381 86	—19 85	.....
1896,	3	460 36	+78 50	.....
1897,	3	460 50	+14	.....
1898,	3	456 30	—4 20	.....
1899,	3	513 21	+56 91	—2 32
STEEL.				
1892,	13	504 87	.....	.....
1893,	13	494 49	—10 38	.....
1894,	13	459 41	—35 08	.....
1895,	13	483 78	+24 37	.....
1896,	13	456 55	—27 23	.....

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease(—) 1899 as compared with 1892.
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STEEL—Continued.

1897,	13	\$474 71	+\$18 16
1898,	13	478 66	+3 95
1899,	13	517 24	+38 58	+\$12 37

ARCHITECTURAL CAST AND
WROUGHT IRON WORK.

1892,	4	600 01	.....	.....
1893,	4	581 70	—18 31	.....
1894,	4	500 19	—81 51	.....
1895,	4	547 05	+46 86	.....
1896,	4	553 71	+6 66	.....
1897,	4	550 44	—3 27	.....
1898,	4	537 42	—13 02	.....
1899,	4	553 34	+15 92	—46 67

IRON FORGING.

1892,	4	650 21	.....	.....
1893,	4	596 95	—53 26	.....
1894,	4	506 31	—90 64	.....
1895,	4	524 03	+17 72	.....
1896,	4	518 62	—5 41	.....
1897,	4	527 67	+9 05	.....
1898,	4	547 51	+19 84	.....
1899,	4	557 84	+10 33	—92 37

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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NAILS AND SPIKES.

1892,	10	\$429 19
1893,	10	397 94	—\$31 25
1894,	10	334 21	—63 73
1895,	10	350 18	+15 97
1896,	10	278 79	—71 39	.....
1897,	10	346 52	+67 73	.....
1898,	10	264 96	—81 56	.....
1899,	10	339 06	+74 10	—\$90 13

NUTS AND BOLTS.

1892,	2	387 17	.....	.....
1893,	2	339 24	—47 93	.....
1894,	2	372 95	+33 71	.....
1895,	2	403 13	+30 18	.....
1896,	2	398 48	—4 65	.....
1897,	2	347 33	—51 15	.....
1898,	2	384 69	+37 36	.....
1899,	2	545 22	+160 53	+158 05

PIPES AND TUBES.

1892,	4	430 78	.....	.....
1893,	4	395 98	—34 80	.....
1894,	4	406 38	+10 40	.....
1895,	4	444 34	+37 96	.....
1896,	4	421 15	—23 19	.....

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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PIPES AND TUBES—Continued.

1897,	4	\$473 40	+\$52 25
1898,	4	477 41	+4 01
1899,	4	483 52	+6 11	+\$52 74

IRON FOUNDRIES AND MACHINE WORKS.

1892,	25	553 64	.....	.....
1893,	25	495 14	—58 50	.....
1894,	25	504 53	+9 39	.....
1895,	25	512 41	+7 88	.....
1896,	25	495 45	—16 96	.....
1897,	25	504 03	+8 58	.....
1898,	25	526 84	+22 81	.....
1899,	25	537 35	+10 51	—16 29

STOVES, RANGES, HEATERS,
ETC.

1892,	9	507 34	.....	.....
1893,	9	496 33	—11 01	.....
1894,	9	425 06	—71 27	.....
1895,	9	448 09	+23 03	.....
1896,	9	431 80	—16 29	.....
1897,	9	448 97	+17 17	.....
1898,	9	454 30	+5 33	.....
1899,	9	487 28	+32 98	—20 06

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
HARDWARE.				
1892,	4	\$388 94	.....	.....
1893,	4	376 59	—\$12 35	.....
1894,	4	337 79	—38 80	.....
1895,	4	371 63	+33 84	.....
1896,	4	346 14	—25 49	.....
1897,	4	353 98	+7 84	.....
1898,	4	339 70	—14 28	.....
1899,	4	391 42	+51 72	+\$2 48
MALLEABLE IRON.				
1892,	2	516 61	.....	.....
1893,	2	463 11	—53 50	.....
1894,	4	442 44	—20 67	.....
1895,	2	505 42	+62 98	.....
1896,	2	465 11	—40 31	.....
1897,	2	484 25	+19 14	.....
1898,	2	490 62	+6 37	.....
1899,	2	521 83	+31 21	+5 22
SAWS, EDGE TOOLS, ETC.				
1892,	5	533 68	.....	.....
1893,	5	527 72	—5 96	.....
1894,	5	444 05	—83 67	.....
1895,	5	538 62	+94 57	.....
1896,	5	498 88	—39 74	.....
1897,	5	465 15	—33 73	.....

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
SAWS, EDGE TOOLS, ETC.—Continued.				
1898,	5	\$499 74	+\$34 59	.....
1899,	5	514 40	+14 66	—\$19 28
METAL AND METALLIC GOODS.				
1892,	8	482 84	.....	.....
1893,	8	455 02	—27 82	.....
1894,	8	450 35	—4 67	.....
1895,	8	487 02	+36 67	.....
1896,	8	495 51	+8 49	.....
1897,	8	470 41	—25 10	.....
1898,	8	473 88	+3 47	.....
1899,	8	495 36	+21 48	+12 52
LOCOMOTIVES AND ENGINES.				
1892,	14	598 90	.....	.....
1893,	14	560 70	—38 20	.....
1894,	14	477 72	—82 98	.....
1895,	14	558 79	+81 07	.....
1896,	14	528 21	—30 58	.....
1897,	14	537 76	+9 55	.....
1898,	14	576 74	+38 98	.....
1899,	14	594 65	+17 91	—4 25

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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ENGINES AND BOILERS.

1892,	6	\$536 72
1893,	6	510 03	—\$26 69
1894,	6	528 49	+18 46
1895,	6	533 66	+5 17
1896,	6	488 16	—45 50	.....
1897,	6	458 24	—29 92	.....
1898,	6	503 87	+45 63	.....
1899,	6	516 72	+12 85	—\$20 00

BOILERS.

1892,	7	419 41	.....	.....
1893,	7	393 67	—25 74	.....
1894,	7	319 23	—74 44	.....
1895,	7	364 61	+45 38	.....
1896,	7	310 13	—54 48	.....
1897,	7	363 29	+53 16	.....
1898,	7	368 12	+4 83	.....
1899,	7	464 53	+96 41	+45 12

BRIDGES.

1892,	4	437 69	.....	.....
1893,	4	425 86	—11 83	.....
1894,	4	405 31	—20 55	.....
1895,	4	464 32	+59 01	.....
1896,	4	397 03	—67 29	.....

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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BRIDGES—Continued.

1897,	4	\$436 94	+\$39 91
1898,	4	440 26	+3 32
1899,	4	419 29	—20 97	—\$18 40

CAR SPRINGS.

1892,	1	675 36	.....	.....
1893,	1	558 81	—116 55	.....
1894,	1	459 85	—98 96	.....
1895,	1	631 36	+171 51	.....
1896,	1	661 14	+29 78	.....
1897,	1	553 15	—107 99	.....
1898,	1	679 73	+126 58	.....
1899,	1	729 46	+49 73	+54 10

CAR COUPLERS.

1892,	1	545 00	.....	.....
1893,	1	493 64	—51 36	.....
1894,	1	386 96	—106 68	.....
1895,	1	502 94	+115 98	.....
1896,	1	446 90	—56 04	.....
1897,	1	457 32	+10 42	.....
1898,	1	449 43	—7 89	.....
1899,	1	496 13	+46 70	—48 87

CARS AND CAR WHEELS.

1892,	8	533 11	.....	.....
1893,	8	502 39	—30 72	.....

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
CARS AND CAR WHEELS—Continued.				
1894,	8	\$456 65	—\$45 74	.....
1895,	8	531 01	+74 36	.....
1896,	8	479 81	—51 20	.....
1897,	8	501 87	+22 06	.....
1898,	8	535 49	+33 62	.....
1899,	8	553 78	+18 29	+\$20 67
WINDOW GLASS, BOTTLE AND TABLE GOODS.				
1892,	17	462 70	.....	.....
1893,	17	368 66	—94 04	.....
1894,	17	430 73	+62 07	.....
1895,	17	354 95	—75 78	.....
1896,	17	391 06	+36 11	.....
1897,	17	452 19	+61 13	.....
1898,	17	453 33	+1 14	.....
1899,	17	456 02	+2 69	—6 68
SHIP BUILDING.				
1892,	1	550 80	.....	.....
1893,	1	556 49	+5 69	.....
1894,	1	574 32	+17 83	.....
1895,	1	567 91	—6 41	.....
1896,	1	552 52	—15 39	.....
1897,	1	555 68	+3 16	.....
1898,	1	490 73	—64 95	.....
1899,	1	528 09	+37 36	—22 71

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
PIANOS AND ORGANS.				
1892,	2	\$336 16	.....	.....
1893,	2	312 24	—\$23 92	.....
1894,	2	285 10	—27 14	.....
1895,	2	349 61	+64 51	.....
1896,	2	407 87	+58 26	.....
1897,	2	420 02	+12 15	.....
1898,	2	425 41	+5 39	.....
1899,	2	444 19	+18 78	+\$8 03
RUBBER BOOTS AND SHOES.				
1892,	1	436 25	.....	.....
1893,	1	415 63	—20 62	.....
1894,	1	366 16	—49 47	.....
1895,	1	378 65	+12 49	.....
1896,	1	338 66	—39 99	.....
1897,	1	276 37	—62 29	.....
1898,	1	349 43	+73 06	.....
1899,	1	351 75	+2 32	—84 50
CARBONS.				
1892,	1	520 83	.....	.....
1893,	1	540 00	+19 17	.....
1894,	1	527 28	—12 72	.....
1895,	1	571 43	+44 15	.....
1896,	1	480 00	—91 43	.....

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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CARBONS—Continued.

1897,	1	\$480 00
1898,	1	480 00
1899,	1	532 63	+\$52 63	+\$11 80

CARPETS.

1892,	24	381 24	.....	.....
1893,	24	368 45	—12 79	.....
1894,	24	355 30	—13 15	.....
1895,	24	374 48	+19 18	.....
1896,	24	341 41	—33 07	.....
1897,	24	360 88	+19 47	.....
1898,	24	356 23	—4 65	.....
1899,	24	373 53	+17 30	—7 71

WOOLEN YARNS.

1892,	10	283 03	.....	.....
1893,	10	291 53	+8 50	.....
1894,	10	249 61	—41 92	.....
1895,	10	262 38	+12 77	.....
1896,	10	306 83	+44 45	.....
1897,	10	260 71	—46 12	.....
1898,	10	305 26	+44 55	.....
1899,	10	307 46	+2 20	+24 43

COTTON YARNS.

1892,	3	326 53	.....	.....
1893,	3	306 36	—20 17	.....

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
COTTON YARNS—Continued.				
1894,	3	\$262 90	—\$43 46	.....
1895,	3	305 46	+42 56	.....
1896,	3	288 52	—16 94	.....
1897,	3	305 92	+17 40	.....
1898,	3	307 31	+1 39	.....
1899,	3	329 70	+22 39	+\$3 17
WORSTED YARNS.				
1892,	3	297 58	.....	.....
1893,	3	299 20	+1 62	.....
1894,	3	279 20	—20 00	.....
1895,	3	277 22	—1 98	.....
1896,	3	236 21	—41 01	.....
1897,	3	276 54	+40 33	.....
1898,	3	245 88	—30 66	.....
1899,	3	285 88	+40 00	—11 70
MISCELLANEOUS YARNS.				
1892,	9	389 80	.....	.....
1893,	9	316 07	—73 73	.....
1894,	9	330 31	+14 24	.....
1895,	9	358 57	+28 26	.....
1896,	9	344 51	—14 06	.....
1897,	9	371 72	+27 21	.....
1898,	9	339 05	—32 67	.....
1899,	9	378 27	+39 22	—\$11 53

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
WOOLEN GOODS.				
1892,	16	\$350 51	.....	.....
1893,	16	310 19	—\$40 32	.....
1894,	16	286 00	—24 19	.....
1895,	16	313 49	+27 49	.....
1896,	16	304 88	—8 61	.....
1897,	16	330 75	+25 87	.....
1898,	16	334 65	+3 90	.....
1899,	16	344 42	+9 77	—\$6 09
COTTON GOODS.				
1892,	17	384 50	.....	.....
1893,	17	306 30	—78 28	.....
1894,	17	317 75	+11 45	.....
1895,	17	332 19	+14 44	.....
1896,	17	273 27	—58 92	.....
1898,	17	299 84	+26 57	.....
1898,	17	323 42	+23 58	.....
1899,	17	351 08	+27 66	—33 42
COTTON AND WOOLEN GOODS.				
1892,	12	346 10	.....	.....
1893,	12	310 00	—36 10	.....
1894,	12	290 19	—19 81	.....
1895,	12	306 62	+16 43	.....
1896,	12	286 72	—19 90	.....

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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COTTON AND WOOLEN GOODS
—Continued.

1897,	12	\$309 46	+\$22 74
1898,	12	315 53	+6 07
1899,	12	323 06	+7 53	—\$23 04

WORSTED GOODS.

1892,	3	362 87	.....	.....
1893,	3	351 18	—11 69	.....
1894,	3	344 35	—6 83	.....
1895,	3	352 16	+7 81	.....
1896,	3	340 08	—12 08	.....
1897,	3	420 51	+80 43	.....
1898,	3	418 78	—1 73	.....
1899,	3	405 67	—13 11	+42 80

KNIT GOODS.

1892,	5	289 84	.....	.....
1893,	5	262 53	—27 31	.....
1894,	5	254 93	—7 60	.....
1895,	5	274 82	+19 89	.....
1896,	5	234 38	—40 44	.....
1897,	5	245 16	+10 78	.....
1898,	5	252 23	+7 07	.....
1899,	5	287 28	+35 05	—2 56

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
CHENILLE GOODS.				
1892,	5	\$411 21	.....	.....
1893,	5	377 93	—\$33 28	.....
1894,	5	376 55	—1 38	.....
1895,	5	387 14	+10 59	.....
1896,	5	364 13	—23 01	.....
1897,	5	373 04	+8 91	.....
1898,	5	356 20	—16 84	.....
1899,	5	421 29	+65 09	+\$10 08
MIXED TEXTILES.				
1892,	9	351 81	.....	.....
1893,	9	308 40	—43 41	.....
1894,	9	287 86	—20 54	.....
1895,	9	303 30	+15 44	.....
1896,	9	295 37	—7 93	.....
1897,	9	292 18	—3 19	.....
1898,	9	298 23	+6 05	.....
1899,	9	315 05	+16 82	—36 76
TAPESTRY AND TABLE COVERS.				
1892,	3	420 53	.....	.....
1893,	3	312 98	—107 55	.....
1894,	3	400 53	+87 55	.....
1895,	3	382 64	—17 89	.....
1896,	3	389 07	+6 43	.....

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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TAPESTRY AND TABLE
COVERS—Continued.

1897,	3	\$410 37	+\$21 30
1898,	3	390 10	—20 27
1899,	3	384 80	—5 30	—\$35 73

HOSIERY.

1892,	13	261 85	.....	.....
1893,	13	249 64	—12 21	.....
1894,	13	219 16	—30 48	.....
1895,	13	259 50	+40 34	.....
1896,	13	233 41	—26 09	.....
1897,	13	256 76	+23 35	.....
1898,	13	251 37	—5 39	.....
1899,	13	252 76	+1 39	—9 09

HOSIERY AND KNIT GOODS.

1892,	3	331 61	.....	.....
1893,	3	306 32	—25 29	.....
1894,	3	319 67	+13 35	.....
1895,	3	285 81	—33 86	.....
1896,	3	232 27	—53 54	.....
1897,	3	276 78	+44 51	.....
1898,	3	284 76	+7 98	.....
1899,	3	312 85	+28 09	—18 76

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
SILK BROAD GOODS.				
1892,	4	\$247 96	.....	.....
1893,	4	227 45	—\$20 51	.....
1894,	4	250 43	+22 98	.....
1895,	4	234 54	—15 89	.....
1896,	4	254 56	+20 02	.....
1897,	4	237 23	—17 33	.....
1898,	4	244 27	+7 04	.....
1899,	4	252 49	+8 22	+\$4 53

AVERAGE DAILY WAGE.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

(In this table the average daily wage of employes, skilled and unskilled, in the same establishments for each of the years 1892, 1893, 1894, 1895, 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1892. Forty-four industries, representing 354 establishments, are considered.)

Character of Industry and Years.	Number of establishments considered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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PIG IRON.

1892,	13	\$1 49
1893,	13	1 56	+\$0 07
1894,	13	1 26	—30
1895,	13	1 48	+22
1896,	13	1 44	—04
1897,	13	1 31	—13	.....
1898,	13	1 30	—01	.....
1899,	13	1 55	+25	+06

ROLLING MILLS—GENERAL PRODUCT.

1892,	32	1 79	.....	.....
1893,	32	1 78	—01	.....
1894,	32	1 61	—17	.....
1895,	32	1 62	+01	.....
1896,	32	1 66	+04	.....
1897,	32	1 55	—11	.....
1898,	32	1 55	.....	.....
1899,	32	1 87	+32	+08

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consider- ed.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
IRON AND STEEL SHEETS AND PLATES.				
1892,	14	\$2 18	.....	.....
1893,	14	2 38	+20	.....
1894,	14	1 97	—41	.....
1895,	14	1 82	—15	.....
1896,	14	2 05	+23	.....
1897,	14	1 82	—23	.....
1898,	14	1 80	—02	.....
1899,	14	1 95	+15	—23
PLATE AND BAR.				
1892,	3	2 06	.....	.....
1893,	3	2 49	+43	.....
1894,	3	1 73	—76	.....
1895,	3	1 48	—25	.....
1896,	3	2 01	+53	.....
1897,	3	1 62	—39	.....
1898,	3	1 52	—10	.....
1899,	3	1 70	+18	—36
STEEL.				
1892,	13	1 80	.....	.....
1893,	13	1 83	+03	.....
1894,	13	1 69	—14	.....
1895,	13	1 73	+04	.....
1896,	13	2 08	+35	.....

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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STEEL—Continued.

1897,	13	\$1 75	—33
1898,	13	1 70	—05
1899,	13	1 81	+11	+01

ARCHITECTURAL CAST AND WROUGHT IRON WORK.

1892,	4	1 95	.....	.....
1893,	4	1 89	—06	.....
1894,	4	1 63	—26	.....
1895,	4	1 78	+15	.....
1896,	4	1 81	+03	.....
1897,	4	1 81	.....	.....
1898,	4	1 76	—05	.....
1899,	4	1 81	+5	—14

IRON FORGING.

1892,	4	2 48	.....	.....
1893,	4	2 45	—03	.....
1894,	4	1 71	—74	.....
1895,	4	1 81	+10	.....
1896,	4	2 11	+30	.....
1897,	4	1 98	—13	.....
1898,	4	1 87	—11	.....
1899,	4	1 89	+02	—59

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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NAILS AND SPIKES.

1892,	10	\$1 68
1893,	10	1 73	+05
1894,	10	1 47	—26
1895,	10	1 60	+13
1896,	10	1 36	—24
1897,	10	1 42	+06	.....
1898,	10	1 29	—13	.....
1899,	10	1 48	+19	—20

NUTS AND BOLTS.

1892,	2	1 26	.....	.....
1893,	2	1 11	—15	.....
1894,	2	1 30	+19	.....
1895,	2	1 38	+08	.....
1896,	2	1 34	—04	.....
1897,	2	1 14	—20	.....
1898,	2	1 26	+12	.....
1899,	2	1 80	+54	+54

PIPES AND TUBES.

1892,	4	1 61	.....	.....
1893,	4	1 52	—09	.....
1894,	4	1 52	.....	.....
1895,	4	1 54	+02	.....
1896,	4	1 42	—12	.....

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYEES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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PIPES AND TUBES—Continued.

1897,	4	\$1 70	+28
1898,	4	1 68	—02
1899,	4	1 73	+05	+12

IRON FOUNDRIES AND MACHINE WORKS.

1892,	25	1 84	.....	.....
1893,	25	1 77	—07	.....
1894,	25	1 79	+02	.....
1895,	25	1 71	—8	.....
1896,	25	1 71	.....	.....
1897,	25	1 69	—02	.....
1898,	25	1 76	+07	.....
1899,	25	1 76	.....	—08

STOVES, RANGES, HEATERS, ETC.

1892,	9	1 78	.....	.....
1893,	9	1 82	+04	.....
1894,	9	2 02	+20	.....
1895,	9	1 96	—06	.....
1896,	9	1 94	—02	.....
1897,	9	1 90	—04	.....
1898,	9	1 85	—05	.....
1899,	9	1 97	+12	+19

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
HARDWARE.				
1892,	4	\$1 32	.....	.....
1893,	4	1 51	+19	.....
1894,	4	1 65	+14	.....
1895,	4	1 43	—22	.....
1896,	4	1 33	—10	.....
1897,	4	1 35	+02	.....
1898,	4	1 46	+11	.....
1899,	4	1 46	.....	+14
MALLEABLE IRON.				
1892,	2	1 71	.....	.....
1893,	2	1 77	+06	.....
1894,	2	1 79	+02	.....
1895,	2	1 86	+07	.....
1896,	2	1 72	—14	.....
1897,	2	1 77	+05	.....
1898,	2	1 68	—09	.....
1899,	2	1 79	+11	+08
SAWS, EDGE TOOLS, ETC.				
1892,	5	1 77	.....	.....
1893,	5	1 86	+09	.....
1894,	5	1 55	—31	.....
1895,	5	1 83	+28	.....
1896,	5	1 79	—04	.....

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
SAWS, EDGE TOOLS, ETC.—Continued.				
1897,	5	\$1 70	—09	.....
1898,	5	1 67	—03	.....
1899,	5	1 71	+04	—0
METAL AND METALLIC GOODS.				
1892,	8	1 50	.....	.....
1893,	8	1 61	+11	.....
1894,	8	1 57	—04	.....
1895,	8	1 56	—01	.....
1896,	8	1 63	+07	.....
1897,	8	1 63	.....	.....
1898,	8	1 53	—10	.....
1899,	8	1 53	.....	+0
LOCOMOTIVES AND ENGINES.				
1892,	14	1 96	.....	.....
1893,	14	1 97	+01	.....
1894,	14	1 79	—18	.....
1895,	14	1 91	+12	.....
1896,	14	1 78	—13	.....
1897,	14	1 82	+04	.....
1898,	14	1 92	+10	.....
1899,	14	1 94	+02	—02

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
ENGINES AND BOILERS.				
1892,	6	\$1 66	.....	.....
1893,	6	1 76	+10	.....
1894,	6	1 77	+01	.....
1895,	6	1 83	+06	.....
1896,	6	1 67	—16	.....
1897,	6	1 54	—13	.....
1898,	6	1 66	+12	.....
1899,	6	1 71	+05	+05

BOILERS.

1892,	7	1 51	.....	.....
1893,	7	1 57	+06	.....
1894,	7	1 45	—12	.....
1895,	7	1 78	+33	.....
1896,	7	1 48	—30	.....
1897,	7	1 47	—01	.....
1898,	7	1 33	—14	.....
1899,	7	1 51	+18	.....

BRIDGES.

1892,	4	1 41	.....	.....
1893,	4	1 40	—01	.....
1894,	4	1 33	—07	.....
1895,	4	1 53	+20	.....
1896,	4	1 39	—14	.....

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average daily wage.	Increase (+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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BRIDGES—Continued.

1897,	4	\$1 43	+04
1898,	4	1 45	+02
1899,	4	1 48	+03	+0

CAR SPRINGS.

1892,	1	2 17
1893,	1	1 79	—38	.....
1894,	1	1 80	+01	.....
1895,	1	2 28	+48	.....
1896,	1	2 59	+31	.....
1897,	1	2 27	—32	.....
1898,	1	2 38	+11	.....
1899,	1	2 43	+05	+2

CAR COUPLERS.

1892,	1	1 76	.....	.....
1893,	1	1 99	+23	.....
1894,	1	1 41	—58	.....
1895,	1	1 77	+36	.....
1896,	1	1 47	—30	.....
1897,	1	1 51	+04	.....
1898,	1	1 48	—03	.....
1899,	1	1 64	+16	—12

CARS AND CAR WHEELS.

1892,	8	1 77	.....	.....
1893,	8	1 78	+01	.....

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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CARS AND CAR WHEELS—Continued.

1894,	3	\$1 75	—03
1895,	8	1 75
1896,	8	1 69	—06
1897,	8	1 74	+05
1898,	8	1 80	+06	.....
1899,	8	1 82	+02	+05

WINDOW GLASS, BOTTLE AND TABLE GOODS.

1892,	17	1 83	.....	.....
1893,	17	1 89	+06	.....
1894,	17	1 65	—24	.....
1895,	17	1 47	—18	.....
1896,	17	1 71	+24	.....
1897,	17	1 69	—02	.....
1898,	17	1 67	—02	.....
1899,	17	1 73	+06	—10

SHIP BUILDING.

1892,	1	1 78	.....	.....
1893,	1	1 80	+02	.....
1894,	1	1 86	+06	.....
1895,	1	1 85	—01	.....
1896,	1	1 80	—05	.....
1897,	1	1 79	—01	.....
1898,	1	1 60	—19	.....
1899,	1	1 75	+15	—03

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preceding year.	Increase(+) or decrease (—) 1899 as compared with 1892
PIANOS AND ORGANS.				
1892,	2	\$1 10	.....	.....
1893,	2	1 11	+01	.....
1894,	2	1 10	—01	.....
1895,	2	1 20	+10	.....
1896,	2	1 37	+17	.....
1897,	2	1 41	+04	.....
1898,	2	1 44	+03	.....
1899,	2	1 48	+04	+38
RUBBER BOOTS AND SHOES.				
1892,	1	1 75	.....	.....
1893,	1	1 80	+05	.....
1894,	1	1 48	—32	.....
1895,	1	1 40	—08	.....
1896,	1	1 39	—01	.....
1897,	1	1 24	—15	.....
1898,	1	1 43	+19	.....
1899,	1	1 45	+02	—30
CARBONS.				
1892,	1	1 73	.....	.....
1893,	1	1 80	+07	.....
1894,	1	1 76	—04	.....
1895,	1	1 90	+14	.....
1896,	1	1 55	—35	.....

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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CARBONS—Continued.

1897,	1	\$1 55
1898,	1	1 55
1899,	1	1 84	+29	+11

CARPETS.

1892,	24	1 36
1893,	24	1 69	+33
1894,	24	1 37	—32	.....
1895,	24	1 35	—02	.....
1896,	24	1 30	—05	.....
1897,	24	1 24	—06	.....
1898,	24	1 25	+01	.....
1899,	24	1 25	.....	—11

WOOLEN YARNS.

1892,	10	95	.....	.....
1893,	10	1 19	+24	.....
1894,	10	90	—29	.....
1895,	10	89	—01	.....
1896,	10	1 14	+25	.....
1897,	10	88	—26	.....
1898,	10	1 11	+23	.....
1899,	10	1 12	+01	+17

COTTON YARNS.

1892,	3	1 10	.....	.....
1893,	3	1 23	+13	.....

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
COTTON YARNS—Continued.				
1894,	3	\$1 01	—22	.....
1895,	3	1 06	+05	.....
1896,	3	1 04	—02	.....
1897,	3	1 03	—01	.....
1898,	3	1 04	+01	.....
1899,	3	1 08	+04	—02
WORSTED YARNS.				
1892,	3	99	.....	.....
1893,	3	1 50	+51	.....
1894,	3	1 01	—49	.....
1895,	3	92	—09	.....
1896,	3	96	+04	.....
1897,	3	96	.....	.....
1898,	3	96	.....	.....
1899,	3	98	+02	—01
MISCELLANEGUS YARNS.				
1892,	9	1 29	.....	.....
1893,	9	1 25	—04	.....
1894,	9	1 26	+01	.....
1895,	9	1 26	.....	.....
1896,	9	1 61	+35	.....
1897,	9	1 31	—30	.....
1898,	9	1 29	—02	.....
1899,	9	1 37	+08	+08

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1892.
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WOOLEN GOODS.

1892,	16	\$1 17
1893,	16	1 27	+10
1894,	16	1 03	—24
1895,	16	1 05	+02
1896,	16	1 11	+06
1897,	16	1 14	+03	.....
1898,	16	1 16	+02	.....
1899,	16	1 20	+04	+03

COTTON GOODS.

1892,	17	1 27	.....	.....
1893,	17	1 23	—04	.....
1894,	17	1 29	+06	.....
1895,	17	1 16	—13	.....
1896,	17	1 06	—10	.....
1897,	17	1 02	—04	.....
1898,	17	1 09	+07	.....
1899,	17	1 17	+08	—10

COTTON AND WOOLEN GOODS.

1892,	12	1 15	.....	.....
1893,	12	1 22	+07	.....
1894,	12	1 12	—10	.....
1895,	12	1 16	+04	.....
1896,	12	1 30	+14	.....

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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COTTON AND WOOLEN GOODS
—Continued.

1897,	12	\$1 15	—15
1898,	12	1 16	+01
1899,	12	1 18	+02	+03

WORSTED GOODS.

1892,	3	1 17	.....	.....
1893,	3	1 58	+41	.....
1894,	3	1 45	—13	.....
1895,	3	1 33	—12	.....
1896,	3	1 55	+22	.....
1897,	3	1 46	—09	.....
1898,	3	1 53	+07	.....
1899,	3	1 38	—15	+21

KNIT GOODS.

1892,	5	93	.....	.....
1893,	5	94	+01	.....
1894,	5	1 00	+06	.....
1895,	5	97	—03	.....
1896,	5	90	—07	.....
1897,	5	91	+01	.....
1898,	5	1 00	+09	.....
1899,	5	1 02	+02	+09

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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CHENILLE GOODS.

1892,	5	\$1 28
1893,	5	1 28
1894,	5	1 26	—02
1895,	5	1 29	+03
1896,	5	1 25	—04
1897,	5	1 24	—01
1898,	5	1 18	—06	.....
1899,	5	1 44	+26	+16

MIXED TEXTILES.

1892,	9	1 16	.....	.....
1893,	9	1 06	—10	.....
1894,	9	1 00	—06	.....
1895,	9	1 02	+02	.....
1896,	9	1 05	+03	.....
1897,	9	1 04	—01	.....
1898,	9	99	—05	.....
1899,	9	1 05	+06	—11

TAPESTRY AND TABLE
COVERS.

1892,	3	1 39	.....	.....
1893,	3	1 08	—31	.....
1894,	3	1 33	+25	.....
1895,	3	1 30	—03	.....
1896,	3	1 34	+04	.....

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1892.
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TAPESTRY AND TABLE
COVERS—Continued.

1897,	3	\$1 41	+07
1898,	3	1 34	—07
1899,	3	1 39	+05

HOSIERY.

1892,	13	88	.....	.....
1893,	13	96	+08	.....
1894,	13	80	—16	.....
1895,	13	88	+08	.....
1896,	13	81	—07	.....
1897,	13	89	+08	.....
1898,	13	90	+01	.....
1899,	13	90	.....	+02

HOSIERY AND KNIT GOODS.

1892,	3	1 11	.....	.....
1893,	3	1 05	—06	.....
1894,	3	1 07	+02	.....
1895,	3	1 05	—02	.....
1896,	3	80	—25	.....
1897,	3	92	+12	.....
1898,	3	95	+03	.....
1899,	3	1 04	+09	—07

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE OF EMPLOYES, SKILLED AND UNSKILLED, IN SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
SILK BROAD GOODS.				
1892,	4	\$0 81	.....	.....
1893,	4	92	+11	.....
1894,	4	86	—06	.....
1895,	4	77	—09	.....
1896,	4	93	+16	.....
1897,	4	78	—15	.....
1898,	4	84	+06	.....
1899,	4	84	.....	+03

VALUE OF PRODUCT.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

(In this table the value of product by the same establishments for each of the years 1892, 1893, 1894, 1895, 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1892. Forty-four industries, representing 354 establishments, are considered.)

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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PIG IRON.

1892,	13	\$10,597,537
1893,	13	8,026,593	—\$2,570,944
1894,	13	5,580,847	—2,445,746
1895,	13	8,220,266	+2,639,419	.....
1896,	13	7,207,417	—1,012,849	.....
1897,	13	6,043,503	—1,163,914	.....
1898,	13	8,307,428	+2,263,925	.....
1899,	13	14,277,497	+5,970,069	+\$3,679,960

ROLLING MILLS—GENERAL
PRODUCT.

1892,	32	91,945,908	.....	.....
1893,	32	86,050,594	—5,895,314	.....
1894,	32	72,055,767	—13,994,827	.....
1895,	32	84,689,471	+12,633,704	.....
1896,	32	88,725,133	+4,035,662	.....
1897,	32	93,540,222	+4,815,089	.....
1898,	32	111,954,871	+18,414,649	.....
1899,	32	169,222,486	+57,267,615	+77,276,578

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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IRON AND STEEL SHEETS AND PLATES.

1892,	14	\$11,680,127
1893,	11	9,584,689	—\$2,095,438
1894,	14	7,798,069	—1,786,620	.....
1895,	14	10,604,551	+2,806,482	.....
1896,	14	8,740,308	—1,864,243	.....
1897,	14	9,668,034	+927,726	.....
1898,	14	13,760,272	+4,092,238	.....
1899,	14	22,050,830	+8,290,558	+\$10,370,703

PLATE AND BAR.

1892,	3	4,991,702	.....	.....
1893,	3	3,648,252	—1,343,450	.....
1894,	3	2,505,387	—1,142,865	.....
1895,	3	3,059,825	+554,438	.....
1896,	3	2,822,922	—236,903	.....
1897,	3	3,162,028	+339,106	.....
1898,	3	3,018,260	—143,768	.....
1899,	3	5,472,624	+2,454,364	+480,922

STEEL.

1892,	13	24,711,579	.....	.....
1893,	13	18,805,567	—5,906,012	.....
1894,	13	15,781,892	—3,023,675	.....
1895,	13	20,687,948	+4,906,056	.....

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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STEEL—Continued.

1896,	13	\$16,603,033	—\$4,084,915
1897,	13	17,454,677	+851,644
1898,	13	20,327,249	+2,872,572
1899,	13	29,873,149	+9,545,900	+\$5,161,570

ARCHITECTURAL CAST AND
WROUGHT IRON WORK.

1892,	4	3,040,397	.....	.....
1893,	4	2,024,821	—1,015,576	.....
1894,	4	1,407,416	—617,405	.....
1895,	4	1,939,661	+532,245	.....
1896,	4	2,236,372	+296,711	.....
1897,	4	1,847,959	—388,413	.....
1898,	4	2,775,266	+927,307	.....
1899,	4	3,143,891	+368,625	+103,494

IRON FORGING.

1892,	4	1,053,091	.....	.....
1893,	4	789,496	—263,595	.....
1894,	4	604,106	—185,390	.....
1895,	4	779,569	+175,463	.....
1896,	4	739,985	—39,584	.....
1897,	4	691,901	—48,084	.....
1898,	4	1,033,335	+341,434	.....
1899,	4	1,806,887	+773,552	+753,796

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
NAILES AND SPIKES.				
1892,	10	\$4,827,506	.....	.....
1893,	19	3,942,713	—\$884,793	.....
1894,	10	3,275,789	—666,924	.....
1895,	10	3,630,012	+354,223	.....
1896,	10	2,124,658	—1,505,354	.....
1897,	10	2,897,297	+772,639	.....
1898,	10	2,494,289	—403,008	.....
1899,	10	3,663,000	+1,168,711	—\$1,164,506
NUTS AND BOLTS.				
1892,	2	1,152,138	.....	.....
1893,	2	1,007,993	—144,145	.....
1894,	2	844,782	—163,211	.....
1895,	2	1,107,466	+262,684	.....
1896,	2	845,826	—261,640	.....
1897,	2	858,788	+12,962	.....
1898,	2	1,042,896	+184,108	.....
1899,	2	1,686,712	+643,816	+534,574
PIPES AND TUBES.				
1892,	4	2,241,867	.....	.....
1893,	4	2,107,604	—134,263	.....
1894,	4	1,927,748	—179,856	.....
1895,	4	2,527,348	+599,600	.....
1896,	4	2,937,296	+409,948	.....

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1892.
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PIPES AND TUBES—Continued.

1897,	4	\$2,701,883	—\$235,413
1898,	4	3,463,901	+762,018
1899,	4	4,625,429	+1,161,528	+\$2,383,562

IRON FOUNDRIES AND MA-
CHINE WORKS.

1892,	25	6,311,627	.....	.....
1893,	25	4,628,768	—1,682,859	.....
1894,	25	3,699,595	—929,173	.....
1895,	25	4,342,835	+643,240	.....
1896,	25	3,515,683	—827,152	.....
1897,	25	4,055,129	+539,446	.....
1898,	25	4,927,626	+872,497	.....
1899,	25	6,795,327	+1,867,701	+483,700

STOVES, RANGES, HEATERS,
ETC.

1892,	9	1,639,839	.....	.....
1893,	9	1,525,391	—114,448	.....
1894,	9	1,218,872	—306,519	.....
1895,	9	1,431,181	+212,309	.....
1896,	9	1,383,157	—48,024	.....
1897,	9	1,414,639	+31,482	.....
1898,	9	1,461,366	+46,727	.....
1899,	9	1,798,904	+337,538	+159,065

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
HARDWARE.				
1892,	4	\$1,242,721	.....	.....
1893,	4	1,145,987	—\$96,734	.....
1894,	4	1,040,023	—105,964	.....
1895,	4	1,255,661	+215,638	.....
1896,	4	1,129,798	—125,863	.....
1897,	4	1,078,827	—50,971	.....
1898, ..	4	1,407,967	+329,140	.....
1899,	4	2,019,722	+611,755	+\$777,001
MALLEABLE IRON.				
1892,	2	452,363	.....	.....
1893,	2	362,608	—89,755	.....
1894,	2	296,371	—66,237	.....
1895,	2	367,157	+70,786	.....
1896,	2	414,786	+47,629	.....
1897,	2	404,410	—10,376	.....
1898,	2	704,698	+300,288	.....
1899,	2	887,905	+183,207	+435,542
SAWS, EDGE TOOLS, ETC.				
1892,	5	3,479,164	.....	.....
1893,	5	3,203,476	—275,688	.....
1894,	5	2,402,820	—800,656	.....
1895,	5	2,914,503	+511,683	.....
1896,	5	2,731,311	—183,192	.....
1897,	5	2,527,680	—203,631	.....

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
SAWS, EDGE TOOLS, ETC.—Continued.				
1898.	5	\$3,328,334	+\$710,654	.....
1899.	5	4,559,222	+1,320,888	+\$1,080,058
METAL AND METALLIC GOODS				
1892.	8	3,027,395	.....	.....
1893.	8	2,526,382	—501,013	.....
1894.	8	2,060,465	—465,917	.....
1895.	8	2,831,319	+770,854	.....
1896.	8	2,401,636	—429,683	.....
1897.	8	2,341,075	—60,561	.....
1898.	8	3,070,810	+729,735	.....
1899.	8	4,101,137	+1,030,327	+1,073,742
LOCOMOTIVES AND ENGINES.				
1892.	14	17,176,167	.....	.....
1893.	14	16,941,708	—234,459	.....
1894.	14	9,629,617	—7,312,091	.....
1895.	14	12,709,222	+3,079,605	.....
1896.	14	14,348,550	+1,639,328	.....
1897.	14	14,327,515	—21,035	.....
1898.	14	19,449,658	+5,122,143	.....
1899.	14	25,412,790	+5,963,132	+8,236,623

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
ENGINES AND BOILERS				
1892,	6	\$2,854,422	.....	.....
1893,	6	2,296,655	—\$557,767	.....
1894,	6	1,625,120	—671,535	.....
1895,	6	1,923,041	+297,921	.....
1896,	6	2,070,170	+147,129	.....
1897,	6	1,778,989	—291,181	.....
1898,	6	2,126,376	+347,387	.....
1899,	6	2,792,857	+666,481	—\$61,565
BOILERS.				
1892,	7	1,768,039	.....	.....
1893,	7	1,514,899	—253,140	.....
1894,	7	1,046,140	—468,759	.....
1895,	7	991,505	—54,635	.....
1896,	7	1,040,575	+49,070	.....
1897,	7	887,529	—153,046	.....
1898,	7	1,444,757	+557,228	.....
1899,	7	1,273,424	—171,333	—494,615
BRIDGES.				
1892,	4	2,179,715	.....	.....
1893,	4	2,009,234	—170,481	.....
1894,	4	1,292,171	—717,063	.....
1895,	4	1,793,317	+501,146	.....
1896,	4	1,332,526	—460,791	.....
1897,	4	1,181,470	—151,056	.....

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of product.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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BRIDGES—Continued.

1898,	4	\$1,651,568	+\$470,098
1899,	4	2,748,096	+1,096,528	+\$568,381

CAR SPRINGS.

1892,	1	1,139,220	.....	.....
1893,	1	704,754	—434,466	.....
1894,	1	331,010	—373,744	.....
1895,	1	496,984	+165,974	.....
1896,	1	517,221	+20,237	.....
1897,	1	428,271	—88,950	.....
1898,	1	652,635	+224,364	.....
1899,	1	1,045,408	+392,773	—93,812

CAR COUPLERS.

1892,	1	1,455,135	.....	.....
1893,	1	1,009,284	—445,851	.....
1894,	1	510,732	—498,552	.....
1895,	1	985,258	+474,526	.....
1896,	1	1,349,321	+364,063	.....
1897,	1	1,052,857	—296,464	.....
1898,	1	1,404,617	+351,760	.....
1899,	1	1,668,325	+263,708	+213,190

CARS AND CAR WHEELS.

1892,	8	7,920,412	.....	.....
1893,	8	6,054,890	—1,865,522	.....
1894,	8	4,090,667	—1,964,223	.....

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
CARS AND CAR WHEELS—Con- tinued.				
1895,	8	\$4,291,747	+\$201,080	.....
1896,	8	4,208,607	—83,140	.....
1897,	8	3,265,217	—943,390	.....
1898,	8	4,200,831	+935,614	.....
1899,	8	5,329,637	+1,128,806	—\$2,590,775
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1892,	17	5,919,793	.....	.....
1893,	17	4,523,986	—1,395,807	.....
1894,	17	4,620,213	+96,227	.....
1895,	17	4,306,614	—313,599	.....
1896,	17	3,969,520	—337,094	.....
1897,	17	4,941,382	+71,862	.....
1898,	17	5,690,250	+748,868	.....
1899,	17	6,425,487	+735,237	+505,694
SHIP BUILDING.				
1892,	1	501,753	.....	.....
1893,	1	832,720	+330,967	.....
1894,	1	506,192	—326,528	.....
1895,	1	426,303	—79,889	.....
1896,	1	686,720	+260,417	.....
1897,	1	476,868	—209,852	.....
1898,	1	1,217,489	+740,621	.....
1899,	1	1,507,546	+290,057	+1,005,793

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
PIANOS AND ORGANS,				
1892,	2	\$196,553	.....	.....
1893,	2	170,969	—\$25,584	.....
1894,	2	139,818	—31,151	.....
1895,	2	161,111	+21,293	.....
1896,	2	139,808	—21,303	.....
1897,	2	145,743	+5,935	.....
1898,	2	151,011	+5,268	.....
1899,	2	171,279	+20,268	—\$25,274
RUBBER BOOTS AND SHOES.				
1892,	1	749,235	.....	.....
1893,	1	845,688	+96,453	.....
1894,	1	711,056	—134,632	.....
1895,	1	839,553	+128,497	.....
1896,	1	812,523	—27,030	.....
1897,	1	619,765	—192,758	.....
1898,	1	960,923	+341,158	.....
1899,	1	1,082,260	+121,337	+333,025
CARBONS.				
1892,	1	59,000	.....	.....
1893,	1	70,000	+11,000	.....
1894,	1	85,000	+15,000	.....
1895,	1	76,500	—8,500	.....
1896,	1	83,000	+6,500	.....
1897,	1	75,000	—8,000	.....

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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CARBONS—Continued.

1898,	1	\$70,000	—\$5,000
1899,	1	66,000	—4,000	+\$7,000

CARPETS.

1892,	24	11,614,157
1893,	24	8,626,792	—2,987,365	.....
1894,	24	8,222,838	—403,954	.....
1895,	24	9,325,013	+1,102,175	.....
1896,	24	7,626,053	—1,698,960	.....
1897,	24	8,670,951	+1,044,898	.....
1898,	24	8,147,236	—523,715	.....
1899,	24	9,987,646	+1,840,410	—1,626,511

WOOLEN YARNS

1892,	10	3,243,694	.....	.....
1893,	10	2,441,663	—802,031	.....
1894,	10	1,999,184	—442,479	.....
1895,	10	2,600,417	+601,233	.....
1896,	10	2,338,390	—262,027	.....
1897,	10	2,700,099	+361,709	.....
1898,	10	3,091,557	+391,458	.....
1899,	10	4,042,767	+951,210	+799,073

COTTON YARNS.

1892,	3	564,857	.....	.....
1893,	3	464,105	—100,752	.....
1894,	3	438,901	—25,204	.....

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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COTTON YARNS—Continued.

1895,	3	\$500,504	+\$61,603
1896,	3	405,093	—95,411
1897,	3	483,900	+78,807
1898,	3	447,456	—36,444	.....
1899,	3	460,269	+12,813	—\$104,588

WORSTED YARNS.

1892,	3	1,692,713	.....	.....
1893,	3	1,029,283	—663,430	.....
1894,	3	1,031,841	+2,558	.....
1895,	3	1,299,326	+267,485	.....
1896,	3	796,376	—502,950	.....
1897,	3	1,061,344	+264,968	.....
1898,	3	853,230	—208,114	.....
1899,	3	1,495,701	+642,471	—197,012

MISCELLANEOUS YARNS.

1892,	9	1,291,013	.....	.....
1893,	9	889,403	—401,610	.....
1894,	9	764,435	—124,968	.....
1895,	9	898,503	+134,068	.....
1896,	9	701,547	—196,956	.....
1897,	9	1,025,606	+324,059	.....
1898,	9	802,170	—223,436	.....
1899,	9	1,105,504	+303,334	—185,509

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of product.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
WOOLEN GOODS.				
1892,	16	\$9,548,699	.....	.....
1893,	16	7,014,527	—4,534,172	.....
1894,	16	5,946,052	—1,068,475	.....
1895,	16	6,742,988	+796,636	.....
1896,	16	5,231,275	—1,511,713	.....
1897,	16	6,150,087	+918,812	.....
1898,	16	6,266,213	+116,126	.....
1899,	16	7,347,006	+1,080,793	—\$2,201,693
COTTON GOODS.				
1892,	17	9,394,632	.....	.....
1893,	17	7,062,762	—2,331,870	.....
1894,	17	7,171,910	+109,148	.....
1895,	17	6,697,893	—474,017	.....
1896,	17	6,157,585	—540,308	.....
1897,	17	7,290,259	+1,132,674	.....
1898,	17	7,459,927	+169,668	.....
1899,	17	8,624,421	+1,164,494	—770,211
COTTON AND WOOLEN GOODS.				
1892,	12	2,207,731	.....	.....
1893,	12	1,676,241	—531,490	.....
1894,	12	1,408,290	—267,951	.....
1895,	12	1,508,407	+100,177	.....
1896,	12	1,296,700	—211,707	.....
1897,	12	1,485,822	+189,122	.....

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
COTTON AND WOOLEN GOODS —Continued.				
1898,	12	\$1,584,830	+\$99,008	.....
1899,	12	1,904,700	+318,870	—\$303,031
WORSTED GOODS.				
1892,	3	1,393,225	.....	.....
1893,	3	754,032	—639,193	.....
1894,	3	942,455	+188,423	.....
1895,	3	1,026,041	+83,586	.....
1896,	3	637,328	—388,713	.....
1897,	3	1,311,883	+674,555	.....
1898,	3	1,311,890	+7	.....
1899,	3	1,382,803	+70,913	—10,422
KNIT GOODS.				
1892,	5	1,284,013	.....	.....
1893,	5	1,087,753	—196,260	.....
1894,	5	812,353	—275,400	.....
1895,	5	1,080,020	+267,667	.....
1896,	5	948,460	—131,560	.....
1897,	5	1,077,926	+129,466	.....
1898,	5	1,045,926	—32,000	.....
1899,	5	1,135,696	+89,770	—148,317

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as compared with the preced- ing year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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CHENILLE GOODS.

1892,	5	\$2,280,994
1893,	5	1,507,337	—\$773,657
1894,	5	1,639,750	+132,413
1895,	5	1,748,029	+108,279	.....
1896,	5	1,711,009	—37,020	.....
1897,	5	1,890,153	+179,144	.....
1898,	5	1,990,273	+100,120	.....
1899,	5	2,260,296	+270,023	—\$20,698

MIXED TEXTILES

1892,	9	3,378,358	.....	.....
1893,	9	2,462,288	—916,070	.....
1894,	9	2,458,285	—4,003	.....
1895,	9	2,813,496	+355,211	.....
1896,	9	2,397,722	—415,774	.....
1897,	9	2,506,565	+108,843	.....
1898,	9	2,777,338	+270,773	.....
1899,	9	3,445,679	+668,341	+67,321

TAPESTRY AND TABLE COVERS.

1892,	3	370,648	.....	.....
1893,	3	301,223	—69,425	.....
1894,	3	309,906	+8,683	.....
1895,	3	496,668	+186,762	.....

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of product.	Increase(+) or decrease(—) as compared with the preceding year.	Increase(+) or decrease(—) 1899 as compared with 1892.
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TAPESTRY AND TABLE
COVERS—Continued.

1896,	3	\$423,356	—\$73,312
1897,	3	500,746	+77,390
1898,	3	589,330	+88,584	.....
1899,	3	648,616	+59,286	+\$277,968

HOSIERY.

1892,	13	3,006,366	.....	.....
1893,	13	2,429,258	—577,108	.....
1894,	13	2,090,722	—338,536	.....
1895,	13	2,819,230	+728,508	.....
1896,	13	2,131,116	—688,114	.....
1897,	13	2,451,639	+320,523	.....
1898,	13	2,592,249	+140,610	.....
1899,	13	2,679,349	+87,100	—327,017

HOSIERY AND KNIT GOODS.

1892,	3	748,926	.....	.....
1893,	3	739,304	—9,622	.....
1894,	3	677,810	—61,494	.....
1895,	3	594,226	—83,584	.....
1896,	3	459,551	—134,675	.....
1897,	3	541,180	+81,629	.....
1898,	3	521,697	—19,483	.....
1899,	3	607,414	+85,717	—141,512

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of product.	Increase(+) or decrease (—) as compared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
SILK BROAD GOODS.				
1892,	4	\$3,118 034	.....	.....
1893,	4	1,176,070	—\$1,941,964	.....
1894,	4	2,624,564	+1,448,494	.....
1895,	4	3,250,176	+625,612	.....
1896,	4	2,873,300	—376,876	.....
1897,	4	3,979,336	+1,106,036	.....
1898,	4	4,554,525	+575,189	.....
1899,	4	5,598,713	+1,044,188	+\$2,480,679

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

(In this table the value of the average annual product per employee by same establishments for each of the years 1892, 1893, 1894, 1895, 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1892. Forty-four industries, representing 354 establishments, are considered.)

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employee.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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PIG IRON

1892,	13	\$3,972 09
1893,	13	3,612 33	—\$359 76
1894,	13	3,187 23	—425 10
1895,	13	3,622 86	+435 63
1896,	13	3,214 72	—408 14	.....
1897,	13	3,174 11	—40 61	.....
1898,	13	3,911 22	+737 11	.....
1899,	13	4,735 49	+824 27	+763 40

ROLLING MILLS—GENERAL PRODUCT.

1892,	32	2,599 69	.....	.....
1893,	32	2,631 92	+32 23	.....
1894,	32	2,392 29	—239 63	.....
1895,	32	2,411 23	+18 94	.....
1896,	32	2,552 87	+141 64	.....
1897,	32	2,629 08	+76 21	.....
1898,	32	2,786 68	+157 60	.....
1899,	32	3,887 22	+1,100 54	+1,287 53

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE—

Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production during the year to each employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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IRON AND STEEL SHEETS AND
PLATES.

1892,	14	\$2,295 17
1893,	14	2,088 17	—\$207 00
1894,	14	1,816 04	—272 13
1895,	14	2,177 97	+361 93	.....
1896,	14	1,932 84	—245 13	.....
1897,	14	1,857 45	—75 39	.....
1898,	14	2,109 18	+251 73	.....
1899,	14	2,648 11	+538 93	+\$352 94

PLATE AND BAR.

1892,	3	1,526 98	.....	.....
1893,	3	1,565 77	+38 79	.....
1894,	3	1,444 02	—121 75	.....
1895,	3	1,352 11	—91 91	.....
1896,	3	2,179 86	+827 75	.....
1897,	3	2,325 02	+145 16	.....
1898,	3	1,272 43	—1,052 59	.....
1899,	3	2,020 16	+747 73	+493 18

STEEL.

1892,	13	1,889 99	.....	.....
1893,	13	1,776 62	—113 37	.....
1894,	13	1,614 02	—162 60	.....
1895,	13	1,704 39	+90 37	.....

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892
STEEL—Continued.				
1896,	13	\$1,650 73	—\$53 66	.....
1897,	13	1,684 65	+33 92	.....
1898,	13	1,669 45	—15 20	.....
1899,	13	2,049 20	+379 75	+\$159 20
ARCHITECTURAL CAST AND WROUGHT IRON WORK.				
1892,	4	2,252 15	.....	.....
1893,	4	1,684 54	—567 61	.....
1894,	4	1,442 03	—242 51	.....
1895,	4	1,348 86	—93 17	.....
1896,	4	1,722 94	+374 08	.....
1897,	4	1,701 62	—21 32	.....
1898,	4	1,933 91	+232 29	.....
1899,	4	1,791 39	—142 52	—460 76
IRON FORGING.				
1892,	4	1,806 33	.....	.....
1893,	4	1,557 19	—249 14	.....
1894,	4	1,288 08	—269 11	.....
1895,	4	1,312 40	+24 32	.....
1896,	4	1,300 50	—11 90	.....
1897,	4	1,298 13	—2 37	.....
1898,	4	1,546 91	+248 78	.....
1899,	4	2,696 85	+1,149 94	+890 52

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE—
Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892
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NAILS AND SPIKES.

1892,	10	\$1,601 16
1893,	10	1,388 28	—\$212 88
1894,	10	1,421 17	+32 89
1895,	10	1,498 77	+77 60
1896,	10	1,123 56	—375 21	.....
1897,	10	1,690 37	+566 81	.....
1898,	10	1,188 32	—502 05	.....
1899,	10	1,552 12	+363 80	—\$49 04

NUTS AND BOLTS.

1892,	2	1,873 39	.....	.....
1893,	2	1,450 35	—423 04	.....
1894,	2	1,508 54	+58 19	.....
1895,	2	1,735 84	+227 30	.....
1896,	2	1,595 90	—139 94	.....
1897,	2	1,490 95	—104 95	.....
1898,	2	1,375 85	—115 10	.....
1899,	2	1,766 19	+390 34	—107 20

PIPES AND TUBES.

1892,	4	1,678 04	.....	.....
1893,	4	1,607 63	—70 41	.....
1894,	4	1,526 32	—81 31	.....
1895,	4	1,738 20	+211 88	.....
1896,	4	2,156 31	+418 11	.....

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production during the year to each employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1892.
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PIPES AND TUBES—Continued.

1897,	4	\$1,991 07	—\$165 24
1898,	4	2,148 82	+157 75
1899,	4	2,689 20	+540 38	+\$1,011 16

IRON FOUNDRIES AND MA- CHINE WORKS.

1892,	25	1,775 92	.....	.....
1893,	25	1,494 59	—281 33	.....
1894,	25	1,421 28	—73 31	.....
1895,	25	1,416 45	—4 83	.....
1896,	25	1,258 29	—158 16	.....
1897,	25	1,350 81	+92 52	.....
1898,	25	1,442 09	+91 28	.....
1899,	25	1,661 04	+218 95	—114 88

STOVES, RANGES, HEATERS, ETC.

1892,	9	1,319 34	.....	.....
1893,	9	1,120 79	—198 55	.....
1894,	9	984 55	—136 24	.....
1895,	9	1,113 76	+129 21	.....
1896,	9	1,067 25	—46 51	.....
1897,	9	1,106 91	+39 66	.....
1898,	9	1,115 55	+8 64	.....
1899,	9	1,379 53	+263 98	+60 19

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE—
Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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HARDWARE.				
1892,	4	\$794 07
1893,	4	742 22	—\$51 85
1894,	4	710 39	—31 83
1895,	4	791 71	+81 32
1896,	4	771 72	—19 99
1897,	4	687 59	—84 13	.....
1898,	4	830 66	+143 07	.....
1899,	4	1,048 66	+218 00	+\$254 59

MALLEABLE IRON.				
1892,	2	1,128 09	.....	.....
1893,	2	1,001 68	—126 41	.....
1894,	2	1,011 51	+9 83	.....
1895,	2	1,000 43	—11 08	.....
1896,	2	932 10	—68 33	.....
1897,	2	938 31	+6 21	.....
1898,	2	1,011 04	+72 73	.....
1899,	2	1,190 22	+179 18	+62 13

SAWS, EDGE TOOLS, ETC.				
1892,	5	1,421 23	.....	.....
1893,	5	1,449 54	+28 31	.....
1894,	5	1,222 81	—226 73	.....
1895,	5	1,332 04	+109 23	.....

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
SAWS, EDGE TOOLS, ETC.—Continued.				
1896,	5	\$1,258 09	—\$73 95	.....
1897,	5	1,188 94	—69 15	.....
1898,	5	1,270 43	+81 49	.....
1899,	5	1,480 75	+210 32	+\$59 52
METAL AND METALLIC GOODS.				
1892,	8	1,753 99	.....	.....
1893,	8	1,557 57	—196 42	.....
1894,	8	1,373 64	—183 93	.....
1895,	8	1,661 57	+287 93	.....
1896,	8	1,464 41	—197 16	.....
1897,	8	1,545 26	+80 85	.....
1898,	8	1,908 52	+363 26	.....
1899,	8	2,267 07	+358 55	+513 08
LOCOMOTIVES AND ENGINES.				
1892,	14	1,481 86	.....	.....
1893,	14	1,454 98	—26 88	.....
1894,	14	1,140 81	—314 17	.....
1895,	14	1,357 39	+216 58	.....
1896,	14	1,402 87	+45 48	.....
1897,	14	1,427 33	+24 46	.....
1898,	14	1,568 90	+141 57	.....
1899,	14	1,717 66	+148 76	+235 80

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE—
Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Value of production during the year to each employee.	Increase (+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1892.
ENGINES AND BOILERS				
1892,	6	\$1,745 82	.....	.....
1893,	6	1,659 43	—\$86 39	.....
1894,	6	1,638 23	—21 20	.....
1895,	6	1,568 55	—69 68	.....
1896,	6	1,561 21	—7 34	.....
1897,	6	1,476 34	—84 87	.....
1898,	6	1,675 63	+199 29	.....
1899,	6	1,982 15	+306 52	+\$236 33
BOILERS.				
1892,	7	2,320 26	.....	.....
1893,	7	2,098 19	—222 07	.....
1894,	7	1,513 95	—584 24	.....
1895,	7	1,428 68	—85 27	.....
1896,	7	1,393 01	—35 67	.....
1897,	7	1,361 24	—31 77	.....
1898,	7	1,783 65	+422 41	.....
1899,	7	2,487 16	+703 51	+166 90
BRIDGES.				
1892,	4	1,791 05	.....	.....
1893,	4	2,069 25	+278 20	.....
1894,	4	1,997 17	—72 08	.....
1895,	4	1,848 78	—148 39	.....
1896,	4	1,805 59	—43 19	.....
1897,	4	1,875 35	+69 76	.....

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1892.
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BRIDGES—Continued.

1898,	4	\$2,181 73	+\$306 38
1899,	4	2,818 56	+636 83	+\$1,027 51

CAR SPRINGS.

1892,	1	5,503 48	.....	.....
1892,	1	3,768 74	—1,734 74	.....
1894,	1	3,064 91	—703 83	.....
1895,	1	4,644 71	+1,579 80	.....
1896,	1	4,497 57	—147 14	.....
1897,	1	3,426 17	—1,071 40	.....
1898,	1	4,661 68	+1,235 51	.....
1899,	1	5,906 26	+1,244 58	+402 78

CAR COUPLERS.

1892,	1	2,194 79	.....	.....
1893,	1	1,770 68	—424 09	.....
1894,	1	1,227 72	—542 96	.....
1895,	1	1,625 84	+398 12	.....
1896,	1	1,382 50	—243 34	.....
1897,	1	1,295 03	—87 47	.....
1898,	1	1,793 89	+498 86	.....
1899,	1	1,843 45	+49 56	—351 34

CARS AND CAR WHEELS.

1892,	8	2,221 09	.....	.....
1893,	8	1,925 06	—295 23	.....
1894,	8	1,445 47	—480 39	.....

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase. (+) or decrease(—) 1899 as compared with 1892.
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CARS AND CAR WHEELS—Continued.

1895,	8	\$1,486 28	+\$40 81
1896,	8	1,481 38	—4 90
1897,	8	1,227 07	—254 31
1898,	8	1,176 04	—51 03	.....
1899,	8	1,673 88	+497 84	—\$547 21

WINDOW GLASS, BOTTLE AND TABLE GOODS.

1892,	17	909 06	.....	.....
1893,	17	754 88	—154 18	.....
1894,	17	896 78	+141 90	.....
1895,	17	695 17	—201 60	.....
1896,	17	815 43	+120 26	.....
1897,	17	989 66	+174 23	.....
1898,	17	1,021 22	+31 56	.....
1899,	17	1,074 68	+53 46	+165 62

SHIP BUILDING.

1892,	1	1,140 35	.....	.....
1893,	1	1,428 34	+287 99	.....
1894,	1	1,281 50	—146 84	.....
1895,	1	1,268 76	—12 74	.....
1896,	1	1,330 85	+62 09	.....
1897,	1	1,229 04	—101 81	.....
1898,	1	1,503 07	+274 03	.....
1899,	1	1,647 59	+144 52	+507 24

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE— Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production during the year to each employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase. (+) or de- crease(—) 1899 as compared with 1892.
PIANOS AND ORGANS.				
1892,	2	\$1,213 29	.....	.....
1893,	2	1,055 37	—\$157 92	.....
1894,	2	863 08	—192 29	.....
1895,	2	1,134 59	+271 51	.....
1896,	2	1,109 59	—25 00	.....
1897,	2	1,165 94	+56 35	.....
1898,	2	1,189 06	+23 12	.....
1899,	2	1,427 33	+238 27	+\$214 04
RUBBER BOOTS AND SHOES.				
1892,	1	2,305 34	.....	.....
1893,	1	2,416 25	+110 91	.....
1894,	1	2,031 59	—384 66	.....
1895,	1	2,109 43	+77 84	.....
1896,	1	2,263 29	+153 86	.....
1897,	1	1,652 71	—610 58	.....
1898,	1	2,402 31	+749 60	.....
1899,	1	2,164 52	—237 79	—140 82
CARBONS.				
1892,	1	1,229 17	.....	.....
1893,	1	1,400 00	+170 83	.....
1894,	1	1,545 45	+145 45	.....
1895,	1	1,561 22	+15 77	.....
1896,	1	1,600 00	+38 78	.....
1897,	1	1,500 00	—100 00	.....

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE—
Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase. (+) or decrease (—) 1899 as compared with 1892.
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CARBONS—Continued.

1898,	1	\$1,400 00	—\$100 00
1899,	1	1,736 84	+336 84	+\$507 67

CARPETS.

1892,	24	1,720 62
1893,	24	1,524 17	—196 45	.....
1894,	24	1,543 90	+19 73	.....
1895, ..	24	1,578 64	+34 74	.....
1896,	24	1,422 24	—156 40	.....
1897,	24	1,577 68	+155 44	.....
1898,	24	1,590 33	+12 65	.....
1899,	24	1,616 65	+26 32	—103 97

WOOLEN YARNS

1892,	10	1,739 25	.....	.....
1893,	10	1,659 86	—79 39	.....
1894,	10	1,741 45	+81 59	.....
1895,	10	1,609 17	—132 28	.....
1896,	10	1,756 87	+147 70	.....
1897,	10	1,829 34	+72 47	.....
1898,	10	2,043 33	+213 99	.....
1899,	10	2,369 73	+326 40	+630 48

COTTON YARNS.

1892,	3	2,180 91	.....	.....
1893,	3	1,991 87	—189 04	.....

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase. (+) or decrease (—) 1899 as compared with 1892.
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COTTON YARNS—Continued.

1894,	3	\$1,625 50	—\$366 31
1895	3	1,702 39	+76 83
1896,	3	1,841 33	+138 94
1897,	3	1,897 65	+56 32	.....
1898,	3	1,675 86	—221 79	.....
1899,	3	1,743 44	+67 58	—\$437 47

WORSTED YARNS.

1892,	3	1,689 33	.....	.....
1893,	3	1,453 79	—235 54	.....
1894,	3	1,429 14	—24 65	.....
1895,	3	1,291 57	—137 57	.....
1896,	3	1,197 56	—94 01	.....
1897,	3	1,457 89	+260 33	.....
1898,	3	1,196 68	—261 21	.....
1899,	3	1,784 84	+588 16	+95 51

MISCELLANEOUS YARNS.

1892,	9	2,373 18	.....	.....
1893,	9	1,864 58	—508 60	.....
1894,	9	1,828 78	—35 80	.....
1895,	9	2,019 11	+190 33	.....
1896,	9	1,853 30	—165 81	.....
1897,	9	2,430 30	+557 00	.....
1898,	9	2,041 14	—389 16	.....
1899,	9	2,440 40	+399 26	+67 22

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE—
Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production during the year to each employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase. (+) or decrease (—) 1899 as compared with 1892.
WOOLEN GOODS.				
1892,	16	\$1,713 39	.....	.....
1893,	16	1,423 98	—\$289 41	.....
1894,	16	1,224 48	—199 50	.....
1895,	16	1,247 54	+23 06	.....
1896,	16	1,330 10	+82 56	.....
1897,	16	1,492 37	+162 27	.....
1898,	16	1,515 04	+22 67	.....
1899,	16	1,688 97	+173 93	—\$24 42
COTTON GOODS.				
1892,	17	2,180 74	.....	.....
1893,	17	1,823 12	—357 62	.....
1894,	17	1,945 19	+122 07	.....
1895,	17	1,706 47	—238 72	.....
1896,	17	1,581 30	—125 17	.....
1897,	17	1,747 01	+165 71	.....
1898,	17	1,756 93	+9 92	.....
1899,	17	2,007 55	+250 62	—173 19
COTTON AND WOOLEN GOODS.				
1892,	12	1,580 34	.....	.....
1893,	12	1,330 35	—249 99	.....
1894,	12	1,128 44	—201 91	.....
1895,	12	1,101 03	—27 41	.....

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE—
Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Value of production during the year to each employee.	Increase(+) or decrease (—) as compared with the preceding year.	Increase. (+) or decrease(—) 1899 as compared with 1892.
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COTTON AND WOOLEN GOODS
—Continued.

1896,	12	\$1,097 04	—\$3 99
1897,	12	1,278 68	+181 64
1898,	12	1,200 63	—78 05	.....
1899,	12	1,509 27	+308 64	—\$71 07

WORSTED GOODS.

1892,	3	2,107 75	.....	.....
1893,	3	1,953 45	—154 30	.....
1894,	3	2,044 37	+90 92	.....
1895,	3	1,875 76	—168 61	.....
1896,	3	1,638 38	—237 38	.....
1897,	3	2,150 63	+512 25	.....
1898,	3	2,250 24	+99 61	.....
1899,	3	2,316 25	+66 01	+208 50

KNIT GOODS.

1892,	5	1,298 29	.....	.....
1893,	5	1,117 93	—180 36	.....
1894,	5	1,006 63	—111 30	.....
1895,	5	1,027 61	+20 98	.....
1896,	5	974 78	—52 83	.....
1897,	5	1,067 25	+92 47	.....
1898,	5	1,067 27	+02	.....
1899,	5	1,131 17	+63 90	—167 12

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production during the year to each employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase. (+) or de- crease(—) 1899 as compared with 1892.
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CHENILLE GOODS.

1892,	5	\$1,446 41
1893,	5	1,307 32	—\$139 09
1894,	5	1,394 35	+87 03
1895,	5	1,470 17	+75 82
1896,	5	1,241 66	—228 51	.....
1897,	5	1,225 08	—16 58	.....
1898,	5	1,263 67	+38 59	.....
1899,	5	1,400 43	+136 76	—\$45 98

MIXED TEXTILES

1892,	9	1,669 10	.....	.....
1893,	9	1,458 70	—210 40	.....
1894,	9	1,330 96	—127 74	.....
1895,	9	1,387 30	+56 34	.....
1896,	9	1,265 95	—121 35	.....
1897,	9	1,237 81	—28 14	.....
1898,	9	1,310 06	+72 25	.....
1899,	9	1,417 39	+107 33	+251 71

TAPESTRY AND TABLE COV-
ERS.

1892,	3	1,647 32	.....	.....
1893,	3	1,610 82	—36 50	.....
1894,	3	1,353 30	—257 52	.....
1895,	3	1,523 52	+170 22	.....

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE— Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production during the year to each employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase. (+) or de- crease(—) 1899 as compared with 1892.
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TAPESTRY AND TABLE COVERS—Continued.

1896,	3	\$1,430 26	—\$93 26
1897,	3	1,274 16	—156 10
1898,	3	1,275 60	+1 44	.....
1899,	3	1,318 32	+42 72	—\$329 00

HOSIERY.

1892,	13	1,021 18	.....	.....
1893,	13	917 74	—103 44	.....
1894,	13	807 54	—110 20	.....
1895,	13	846 87	+39 33	.....
1896,	13	786 97	—59 90	.....
1897,	13	813 95	+26 98	.....
1898,	13	807 05	—6 90	.....
1899,	13	836 25	+29 20	—184 93

HOSIERY AND KNIT GOODS.

1892,	3	1,258 70	.....	.....
1893,	3	1,211 97	—46 73	.....
1894,	3	1,129 68	—82 29	.....
1895,	3	946 22	—183 46	.....
1896,	3	1,014 46	+68 24	.....
1897,	3	1,005 91	—8 55	.....
1898,	3	1,107 64	+101 73	.....
1899,	3	1,322 02	+214 38	+63 32

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE BY SAME ESTABLISHMENTS FOR THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production during the year to each employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase. (+) or de- crease(—) 1899 as compared with 1892.
SILK BROAD GOODS.				
1892,	4	\$1,796 10	.....	.....
1893,	4	1,077 09	—\$719 01	.....
1894,	4	1,815 05	+737 96	.....
1895,	4	1,694 56	—120 49	.....
1896,	4	1,553 14	—141 42	.....
1897,	4	1,492 06	—61 08	.....
1898,	4	1,536 61	+44 55	.....
1899,	4	1,754 54	+217 93	—\$41 56

YEAR 1892.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed	Aggregate amount of wages paid.	Average yearly earnings.	Value of product.
Pig iron,.....	13	321	2,668	\$1,222,091	\$477 92	\$10,597,537
Rolling mills, general product,.	32	314	35,368	19,909,005	562 91	91,945,908
Iron and steel sheets and plates,	14	290	5,089	3,225,444	633 81	11,680,127
Plate and bar,	3	250	3,269	1,685,275	515 53	4,991,702
Steel,	13	281	13,075	6,601,181	504 87	24,711,579
Architectural cast and wrought iron works,	4	307	1,350	810,020	600 01	3,040,397
Iron forgings,	4	262	583	379,070	650 21	1,053,691
Nails and spikes,	10	256	3,015	1,294,034	429 19	4,827,506
Nuts and bolts,	2	306	615	238,112	387 17	1,152,138
Pipes and tubes,	4	267	1,336	575,531	430 78	2,241,867
Iron foundries and machine works,	25	301	3,554	1,967,645	553 64	6,311,627
Stoves, ranges, heaters, etc.,...	9	284	1,243	630,622	507 34	1,639,839
Hardware,	4	295	1,565	608,700	388 94	1,242,721
Malleable iron,	2	302	401	207,159	516 61	452,363
Saws, edge tools, etc.,	5	302	2,448	1,306,442	533 68	3,479,164
Metal and metallic goods,	8	321	1,726	833,385	482 84	3,027,395
Locomotives and engines	14	305	11,591	6,941,946	598 90	17,176,167
Engines and boilers,	6	323	1,635	820,391	536 72	2,854,422
Boilers,	7	277	762	394,594	419 41	1,768,039
Bridges,	4	310	1,217	532,673	437 62	2,179,715
Car springs,	1	312	207	139,800	675 36	1,139,220
Car couplers,	1	310	663	361,338	545 00	1,455,135
Cars and car wheels,	8	301	3,566	1,901,062	533 11	7,920,412
Ship building,	1	310	440	242,358	550 80	501,753
Rubber boots and shoes,	1	250	325	141,784	436 25	749,235
Woolen yarns,	10	299	1,865	527,864	283,03	3,243,694
Cotton yarns,	3	296	259	84,571	326 53	564,857
Worsted yarns,	3	300	1,002	298,181	297 58	1,692,713
Miscellaneous yarns,	9	302	544	212,052	389 80	1,291,013
Hosiery,	13	296	2,914	770,891	261 85	3,006,366
Hosiery and knit goods,	3	300	595	197,312	331 61	748,926
Carpets,	24	280	6,750	2,573,458	381 24	11,614,157
Cotton and woolen goods,	12	301	1,397	483,504	346 10	2,207,731

YEAR 1892—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of estab- lishments consid- ered.	Average number of days in opera- tion.	Total number of per- sons em- ployed.	Aggre- gate amount of wages paid.	Average yearly earnings	Value of product.
Cotton goods,	17	303	4,308	\$1,656,805	\$284 58	\$9,394,632
Woolen goods,	16	299	5,573	1,933,361	350 51	9,548,699
Knit goods,	5	313	959	286,618	289 84	1,284,013
Worsted goods,	3	310	661	239,858	362 87	1,393,225
Mixed textiles,	9	303	2,024	712,059	351 81	3,378,358
Chenille goods,	5	322	1,577	648,492	411 21	2,280,994
Tapestry and table covers,	3	302	225	94,620	420 53	370,618
Silk broad goods,	4	304	1,736	430,455	247 96	3,118,034
Window glass, bottle and table goods,	17	253	6,512	3,013,108	462 70	5,919,793
Pianos and organs,	2	303	162	53,972	333 16	196,553
Carbons,	1	300	48	25,000	520 83	59,000
Totals,	354	294	136,882	\$67,331,876	\$491 90	\$269,452,165

YEAR 1893.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed.	Aggregate amount of wages paid.	Average yearly earnings.	Value of product.
Pig iron,	13	286	2,222	\$968,289	\$446 14	\$8,026,593
Rolling mills, general product.,	32	307	32,695	17,884,919	547 02	86,050,594
Iron and steel sheets and plates,	13	243	4,590	2,658,514	579 19	9,584,689
Plate and bar,	3	198	2,330	1,150,276	493 68	3,648,252
Steel,	14	270	10,585	5,234,148	494 49	18,805,567
Architectural cast and wrought iron work,	4	308	1,202	699,209	581 70	2,024,821
Iron forgings,	4	244	507	302,651	596 95	789,496
Nails and spikes,	10	230	2,840	1,130,151	397 94	3,942,713
Nuts and bolts,	2	305	695	235,777	339 24	1,007,993
Pipes and tubes,	4	260	1,311	519,129	395 98	2,107,604
Iron foundries and machine works,	25	279	3,097	1,533,465	495 14	4,628,768
Stoves, ranges, heaters, etc., ..	9	272	1,361	674,514	496 33	1,525,391
Hardware,	4	249	1,544	581,468	376 59	1,145,987
Malleable iron,	2	262	362	167,644	463 11	362,608
Saws, edge tools, etc.,	5	284	2,210	1,166,262	527 72	3,203,476
Metal and metallic goods,	8	282	1,622	738,036	455 02	2,526,382
Locomotives and engines,	14	284	11,644	6,528,803	560 70	16,941,708
Engines and boilers,	6	289	1,384	658,487	510 03	2,296,655
Boilers,	7	250	722	285,385	393 67	1,514,899
Bridges,	4	305	971	413,517	425 86	2,009,234
Car springs,	1	312	187	104,498	558 81	704,754
Car couplers,	1	243	570	281,375	493 64	1,009,284
Cars and car wheels,	8	282	3,144	1,579,523	502 39	6,054,890
Ship building,	1	309	583	324,439	556 49	832,720
Rubber boots and shoes,	1	230	350	145,471	415 63	845,688
Woolen yarns,	10	245	1,471	428,848	291 53	2,441,663
Cotton yarns,	3	250	233	71,384	306 36	464,105
Worsted yarns,	3	199	708	211,833	299 20	1,029,283
Miscellaneous yarns,	9	252	477	150,765	316 07	889,403
Hosiery,	13	261	2,647	660,803	249 64	2,429,258
Hosiery and knit goods,	3	293	610	186,860	306 32	739,304
Carpets,	24	218	5,660	2,085,404	368 45	8,626,792
Cotton and woolen goods,	12	255	1,260	390,597	310 00	1,676,241

YEAR 1893—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed.	Aggregate amount of wages paid.	Average yearly earnings.	Value of product.
Cotton goods,	17	249	3,874	\$1,186,610	\$306 30	\$7,062,762
Woolen goods,	16	245	4,926	1,527,984	310 19	7,014,527
Knit goods,	5	278	973	255,438	262 53	1,087,753
Worsted goods,	3	222	386	135,561	351 18	754,032
Mixed textiles,	9	290	1,688	520,683	308 40	2,462,288
Chenille goods,	5	295	1,153	435,761	377 93	1,507,337
Tapestry and table covers,	3	291	187	68,484	312 98	301,223
Silk and broad goods,	4	247	1,092	248,372	227 45	1,176,070
Window glass, bottle and table goods,	17	195	5,993	2,209,369	368 66	4,523,986
Pianos and organs,	2	280	162	50,583	312 24	170,969
Carbons,	1	300	50	27,000	540 00	70,000
Totals,	354	268	122,278	\$56,818,289	\$164 66	\$226,017,762

YEAR 1894.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed.	Aggregate amount of wages paid.	Average yearly earnings.	Value of product.
Pig iron,	13	301	1,751	\$658,393	\$382 09	\$5,580,847
Rolling mills, general product, ..	32	300	30,129	14,537,538	482 65	72,055,767
Iron and steel sheets and plates,	14	267	4,294	2,251,379	524 31	7,798,069
Plate and bar,	3	232	1,735	696,970	401 71	2,505,387
Steel,	13	272	9,778	4,492,128	459 41	15,781,892
Architectural cast and wrought iron work,	4	307	976	488,190	500 19	1,407,416
Iron forgings,	4	296	469	237,457	506 31	604,106
Nails and spikes,	10	228	2,305	770,354	334 21	3,275,789
Nuts and bolts,	2	288	560	208,854	372 95	844,782
Pipes and tubes,	4	268	1,263	513,268	406 38	1,927,748
Iron foundries and machine works,	25	282	2,603	1,313,309	504 53	3,699,595
Stoves, ranges, heaters, etc.,	9	210	1,238	526,222	425 06	1,218,872
Hardware,	4	205	1,464	494,538	337 79	1,040,023
Malleable iron,	2	247	293	129,634	442 44	296,371
Saws, edge tools, etc.,	5	286	1,965	872,555	444 05	2,402,820
Metal and metallic goods,	8	288	1,500	675,524	450 35	2,060,465
Locomotives and engines,	14	267	8,441	4,032,489	477 72	9,629,617
Engines and boilers,	6	298	992	521,260	528 49	1,625,120
Boilers,	7	220	691	220,692	319 23	1,046,140
Bridges,	4	305	647	262,240	405 31	1,292,171
Car springs,	1	255	108	49,664	459 85	331,010
Car couplers,	1	203	416	160,978	386 96	510,732
Cars and car wheels,	8	261	2,830	1,292,310	456 65	4,090,667
Ship building,	1	310	395	226,858	574 32	506,192
Rubber boots and shoes,	1	248	350	128,156	366 16	711,056
Woolen yarns,	10	277	1,148	286,557	249 61	1,999,184
Cotton yarns,	3	261	270	70,983	262 90	438,901
Worsted yarns,	3	277	722	201,584	279 20	1,031,841
Miscellaneous yarns,	9	262	418	138,072	330 31	764,435
Hosiery,	13	273	2,589	567,411	219 16	2,090,722
Hosiery and knit goods,	3	300	600	191,806	319 67	677,810
Carpets,	21	259	5,326	1,002,657	355 30	8,222,838
Cotton and woolen goods,	12	258	1,248	362,164	290 19	1,408,290

YEAR 1894—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed.	Aggregate amount of wages paid.	Average yearly earnings	Value of product.
Cotton goods,	17	246	3,687	\$1,171,554	\$317 75	\$7,171,910
Woolen goods,	16	278	4,856	1,388,781	286 00	5,946,052
Knit goods,	5	254	807	205,732	254 93	812,353
Worsted goods,	3	237	461	158,743	344 35	942,455
Mixed textiles,	9	289	1,847	531,680	287 86	2,458,285
Chenille goods,	5	239	1,176	442,828	376 55	1,639,750
Tapestry and table covers,	3	300	229	91,722	400 53	309,906
Silk broad goods,	4	292	1,446	362,119	250 00	2,624,564
Window glass, bottle and table goods,	17	261	5,152	2,219,127	430 73	4,620,213
Pianos and organs,	2	259	162	46,187	285 10	139,818
Carbons,	1	300	55	29,000	527 28	85,000
Totals,	354	276	109,383	\$45,229,667	\$413 50	\$185,626,971

YEAR 1895.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed.	Aggregate amount of wages paid.	Average yearly earnings.	Value of product.
Pig iron,	13	327	2,269	\$1,060,012	\$488 66	\$8,220,266
Rolling mills, general product, ..	32	310	35,123	17,620,324	501 65	84,689,471
Iron and steel sheets and plates,	14	307	4,869	2,728,209	560 32	10,604,551
Plate and bar,	3	257	2,263	864,145	381 86	3,059,825
Steel,	13	279	12,138	5,872,084	483 78	20,687,948
Architectural cast and wrought iron work,	4	306	1,438	786,657	547 05	1,939,661
Iron forgings,	4	289	594	311,275	524 03	779,569
Nails and spikes,	10	220	2,422	848,142	350 18	3,630,012
Nuts and bolts,	2	291	638	257,202	403 13	1,107,466
Pipes and tubes,	4	288	1,454	646,083	444 34	2,527,348
Iron foundries and machine works,	25	299	3,066	1,571,056	512 41	4,342,835
Stoves, ranges, heaters, etc., ..	9	229	1,285	575,802	448 09	1,431,181
Hardware,	4	260	1,586	589,411	371 63	1,255,661
Malleable iron,	2	272	367	185,490	505 42	367,157
Saws, edge tools, etc.,	5	294	2,188	1,078,514	538 62	2,914,563
Metal and metallic goods,	8	311	1,704	829,877	487 02	2,831,319
Locomotives and engines,	14	292	9,363	5,231,956	558 79	12,709,222
Engines and boilers,	6	292	1,226	647,889	533 66	1,923,041
Boilers,	7	205	694	253,044	364 61	991,505
Bridges,	4	303	970	450,391	464 32	1,733,317
Car springs,	1	277	107	67,556	631 36	496,984
Car couplers,	1	285	606	304,785	502 94	985,258
Cars and car wheels,	8	303	2,887	1,533,033	531 01	4,291,747
Ship building,	1	307	236	190,820	567 91	426,303
Rubber boots and shoes,	1	271	398	150,705	378 65	839,553
Woolen yarns,	10	293	1,616	424,006	262 38	2,600,417
Cotton yarns,	3	288	294	89,806	305 46	500,504
Worsted yarns,	3	301	1,006	278,890	277 22	1,299,326
Miscellaneous yarns,	9	284	445	159,564	358 57	898,508
Hosiery,	13	294	3,329	863,884	259 50	2,819,230
Hosiery and knit goods,	3	272	628	179,494	285 81	594,226
Carpets,	24	277	5,907	2,228,021	374 48	9,325,013
Cotton and woolen goods,	12	265	1,370	420,075	306 62	1,508,407

YEAR 1895—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed	Aggregate amount of wages paid.	Average yearly earnings.	Value of product.
Cotton goods,	17	285	3,925	\$1,303,844	\$332 19	\$6,697,893
Woolen goods,	16	298	5,405	1,694,440	313 49	6,742,988
Knit goods,	5	283	1,051	288,841	274 82	1,680,020
Worsted goods,	3	265	547	192,633	352 16	1,026,041
Mixed textiles,	9	298	2,028	615,095	303 30	2,812,496
Chenille goods,	5	300	1,189	460,319	387 14	1,718,029
Tapestry and table covers,	3	295	326	124,723	382 64	456,668
Silk broad goods,	4	303	1,918	449,854	234 54	3,250,176
Window glass, bottle and table goods,	17	241	6,195	2,198,916	354 95	4,306,614
Pianos and organs,	2	290	112	49,644	349 61	161,111
Carbons,	1	300	49	28,000	571 43	76,500
Totals,	354	288	127,361	\$56,704,511	\$445 78	\$222,730,936

YEAR 1896.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed.	Aggregate amount of wages paid.	Average yearly earnings	Value of product.
Pig iron,	13	293	2,242	\$947,503	\$422 61	\$7,207,417
Rolling mills, general product..	32	308	34,755	17,829,462	513 00	88,725,133
Iron and steel sheets and plates,	14	258	4,522	2,390,653	528 67	8,740,308
Plate and bar,	3	229	1,295	596,165	460 36	2,822,922
Steel,	13	219	10,058	4,592,017	456 55	16,603,033
Architectural cast and wrought iron work,	4	305	1,298	718,716	553 71	2,236,372
Iron forgings,	4	246	569	285,092	518 62	739,985
Nails and spikes,	10	205	1,891	527,201	278 79	2,124,658
Nuts and bolts,	2	298	530	211,195	398 48	845,826
Pipes and tubes,	4	296	1,326	658,449	421 15	2,937,296
Iron foundries and machine works,	25	289	2,794	1,384,290	495 45	3,515,683
Stoves, ranges, heaters, etc.,...	9	222	1,296	559,614	431 80	1,383,157
Hardware,	4	260	1,464	506,748	346 14	1,129,798
Malleable iron,	2	270	445	206,976	465 11	414,786
Saws, edge tools, etc.,	5	279	2,171	1,083,069	498 88	2,731,311
Metal and metallic goods,	8	304	1,640	812,633	495 51	2,401,636
Locomotives and engines,	14	291	10,228	5,402,517	528 21	14,348,550
Engines and boilers,	6	291	1,326	647,307	488 16	2,070,170
Boilers,	7	209	747	231,665	310 13	1,040,575
Bridges,	4	285	738	293,005	397 03	1,332,526
Car springs,	1	255	115	76,031	661 14	517,221
Car couplers,	1	303	976	436,177	446 90	1,349,321
Cars and car wheels,	8	284	2,841	1,363,150	479 81	4,208,607
Ship building,	1	307	516	285,103	552 52	686,720
Rubber boots and shoes,	1	244	359	131,577	338 66	812,523
Woolen yarns,	10	269	1,331	408,385	306 83	2,338,390
Cotton yarns,	3	276	220	63,476	288 52	405,093
Worsted yarns,	3	246	665	157,080	236 21	796,376
Miscellaneous yarns,	9	214	378	130,224	344 51	701,547
Hosiery,	13	288	2,708	632,065	233 41	2,131,116
Hosiery and knit goods,	3	289	453	105,220	232 27	459,551
Carpets,	24	263	5,362	1,830,621	341 41	7,626,053

YEAR 1896—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of estab- lishments consid- ered.	Average number of days in opera- tion.	Total number of per- sons em- ployed.	Aggre- gate amount of wages paid.	Average yearly earnings	Value of product.
Cotton and woolen goods,	12	220	1,182	\$338,900	\$286 72	\$1,296,709
Cotton goods,	17	258	3,894	1,064,130	273 27	6,157,585
Woolen goods,	16	274	3,933	1,199,111	304 88	5,231,275
Knit goods,	5	261	973	228,053	234 38	918,460
Worsted goods,	3	220	389	132,290	340 08	637,328
Mixed textiles,	9	282	1,894	559,443	297 37	2,307,722
Chenille goods,	5	291	1,378	501,772	364 13	1,711,009
Tapestry and table covers,	3	289	296	115,266	389 07	423,356
Silk broad goods,	4	274	1,850	470,930	254 56	2,873,300
Window glass, bottle and table goods,	17	229	4,868	1,903,683	391 06	3,969,520
Pianos and organs,	2	208	126	51,392	407 87	139,808
Carbons,	1	310	50	24,000	480 00	30,000
Totals,	354	276	118,092	\$52,102,365	\$441 29	\$211,252,782

YEAR 1897.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed.	Aggregate amount of wages paid.	Average yearly earnings	Value of product.
Pig iron,	13	319	1,904	\$797,839	\$419 03	\$6,043,503
Rolling mills, general product, .	32	311	35,579	17,159,786	482 30	93,540,222
Iron and steel sheets and plates,	14	271	5,295	2,569,347	493 63	9,608,034
Plate and bar,	3	285	1,360	626,280	460 50	3,162,028
Steel,	13	271	10,361	4,918,524	474 71	17,454,677
Architectural cast and wrought iron work,	4	304	1,086	597,775	550 44	1,847,959
Iron forgings,	4	267	533	281,250	527 67	691,901
Nails and spikes,	10	243	1,714	503,927	346 52	2,897,207
Nuts and bolts,	2	504	576	200,064	347 33	858,788
Pipes and tubes,	4	278	1,357	642,407	473 40	2,701,883
Iron foundries and machine works,	25	298	3,002	1,513,104	504 03	4,055,120
Stoves, ranges, heaters, etc., ..	9	236	1,278	574,595	448 97	1,414,639
Hardware,	4	261	1,569	555,295	353 98	1,078,827
Malleable iron,	2	273	431	208,714	484 25	404,410
Saws, edge tools, etc.,	5	274	2,126	988,912	465 15	2,527,680
Metal and metallic goods,	8	288	1,515	712,676	470 41	2,341,075
Locomotives and engines,	14	295	10,038	5,398,050	537 76	14,327,515
Engines and boilers,	6	297	1,205	552,180	458 24	1,778,989
Boilers,	7	248	652	236,863	363 29	887,529
Bridges,	4	305	630	75,270	436 94	1,181,470
Car springs,	1	244	125	69,144	553 15	428,271
Car couplers,	1	303	813	371,800	457 32	1,052,857
Cars and car wheels,	8	288	2,661	1,335,463	501 81	3,265,217
Window glass, bottle and table ble goods,	17	268	4,993	2,257,805	459 19	4,941,382
Ship building,	1	310	388	215,604	555 68	476,868
Pianos and organs,	2	298	125	52,502	420 02	145,743
Rubber boots and shoes,	1	222	375	103,639	276 37	619,765
Carbons,	1	310	50	24,000	480 00	75,000
Carpets,	24	291	5,496	1,983,366	360 88	8,670,951
Woolen yarns,	10	296	1,476	384,803	260 71	2,700,099
Cotton yarns,	3	297	255	78,009	305 92	483,900

YEAR 1897—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of establishments considered.	Average number of days in operation.	Total number of persons employed.	Aggregate amount of wages paid.	Average yearly earnings.	Value of product.
Worsted yarns,	3	288	728	\$201,321	\$276 54	\$1,061,344
Miscellaneous yarns,	9	283	122	156,864	371 72	1,025,696
Woolen goods,	16	299	4,121	1,363,041	339 75	6,159,087
Cotton goods,	17	293	4,173	1,251,253	299 84	7,290,259
Cotton and woolen goods,	12	270	1,162	359,586	309 46	1,485,822
Worsted goods,	3	289	610	256,513	420 51	1,311,883
Knit goods,	5	271	1,010	247,615	245 16	1,077,426
Chenille goods,	5	301	1,542	575,861	373 94	1,890,153
Mixed textiles,	9	282	2,025	591,656	292 18	2,566,565
Tapestry and table covers,	3	291	393	161,275	419 37	500,746
Hosiery,	13	288	3,012	773,370	256 76	2,451,639
Hosiery and knit goods,	3	300	538	148,998	276 78	541,180
Silk broad goods,	4	303	2,667	632,685	237 23	3,979,336
Totals,	354	287	121,281	\$52,138,941	\$129 40	\$222,995,654

YEAR 1898.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of es tablish- ments consid- ered.	Average number of days in operation.	Total number of persons em- ployed.
Pig iron,	13	344	2,124
Rolling mills, general product,	32	321	40,175
Iron and steel sheets and plates,	14	290	6,524
Plate and bar,	3	300	2,372
Steel	13	282	12,176
Architectural cast and wrought iron work, ..	4	306	1,435
Iron forging,	4	293	668
Nails and spikes,	10	205	2,099
Nuts and bolts,	2	306	758
Pipes and tubes,	4	284	1,612
Iron foundries and machine works,	25	300	3,417
Stoves, ranges, heaters, etc.,	9	246	1,310
Hardware,	4	233	1,695
Malleable iron,	2	292	697
Saws, edge tools, etc.,	5	299	2,549
Metal and metallic goods,	8	309	1,609
Locomotives and engines,	14	301	12,397
Engines and boilers,	6	303	1,269
Boilers,	7	277	810
Bridges, ..	4	304	757
Car springs,	1	286	140
Car couplers,	1	303	783
Cars and car wheels,	8	297	3,572
Ship building,	1	307	810
Rubber boots and shoes,	1	244	400
Woolen yarns,	10	274	1,513
Cotton yarns,	3	295	267

YEAR 1898.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Aggregate amount of wages paid.	Average yearly earnings.	Value of product	Value of product during the year to each employe.	Average daily wage.
\$950,759	\$447 63	\$8,307,428	\$3,911 22	\$1 30
20,005,631	497 96	111,954,871	2,786 68	1 55
3,402,674	521 56	13,760 272	2,109 18	1 80
1,082,343	456 30	3,018,260	1,272 43	1 52
5,828,123	478 66	20,327,249	1,669 45	1 70
771,191	537 42	2,775,266	1,933 91	1 76
365,737	547 51	1,033,335	1,546 91	1 87
556,145	264 96	2,494,289	1,188 32	1 29
291,593	384 69	1,042,896	1,375 85	1 26
769,577	477 41	3,463,901	2,148 82	1 68
1,800,212	526 84	4,927,626	1,442 09	1 76
595,133	454 30	1,461,366	1,115 55	1 85
575,798	339 70	1,407,967	830 66	1 46
341,962	490 62	704,698	1,011 04	1 68
1,273,829	499 74	3,238,334	1,270 43	1 67
762,480	473 88	3,070,810	1,908 52	1 53
7,149,884	576 74	19,449 658	1,568 90	1 92
639,408	503 87	2,126,376	1,675 63	1 66
298,175	368 12	1,444,757	1,783 65	1 33
333,277	440 26	1,651,568	2,181 73	1 45
95,162	679 73	652,635	4,661 68	2 38
351,902	449 43	1,404,617	1,793 89	1 48
1,912,759	535 49	4,200,831	1,176 04	1 80
397,489	490 73	1,217,489	1,503 07	1 60
139,770	349 43	960,923	2,402 31	1 43
461,866	305 26	3,091,557	2,043 33	1 11
82,051	307 31	447,456	1,675 86	1 04

YEAR 1898—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of es tablish- ments consid- ered.	Average number of days in operation.	Total number of persons em- ployed.
Worsted yarns,	3	256	713
Miscellaneous yarns,	9	263	393
Hosiery,	13	279	3,212
Hosiery and knit goods,	3	300	471
Carpets,	24	286	5,123
Cotton and woolen goods,	12	272	1,320
Cotton goods,	17	298	4,246
Woolen goods,	16	289	4,136
Knit goods,	5	253	980
Worsted goods,	3	273	583
Mixed textiles,	9	300	2,120
Chenille goods,	5	302	1,575
Tapestry and table covers,	3	291	462
Silk broad goods,	4	292	2,964
Window glass, bottles and table goods,	17	271	5,572
Pianos and organs,	2	296	127
Carbons,	1	310	50
Total and averages,	354	298	137,985

YEAR 1898—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Aggregate amount of wages paid.	Average yearly earnings.	Value of product	Value of pro- duct during the year to each em- ployee.	Average daily wage.
\$175,310	\$245 88	\$853,230	\$1,196 68	\$0 96
133,248	339 05	802,170	2,041 14	1 29
807,402	251 37	2,592,249	807 05	90
134,120	284 76	521,697	1,107 64	95
1,824,963	356 23	8,147,236	1,590 33	1 25
416,500	315 53	1,584,830	1,200 63	1 16
1,373,237	323 42	7,459,927	1,756 93	1 09
1,384,116	334 65	6,266,213	1,515 04	1 16
247,184	252 23	1,045,926	1,067 27	1 00
244,146	418 78	1,311,890	2,250 24	1 53
632,258	298 23	2,777,338	1,310 06	99
561,012	356 20	1,990,273	1,263 67	1 18
180,225	390 10	589,330	1,275 60	1 34
724,004	244 27	4,554,525	1,536 61	84
2,525,933	453 33	5,690,250	1,021 22	1 67
54,027	425 41	151,011	1,189 06	1 44
24,000	480 00	70,000	1,400 00	1 55
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\$62,676,615	\$454 52	\$266,044,530	\$1,929 33	\$1 52

YEAR 1899.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of es- tablish- ments consid- ered.	Average number of days in operation.	Total number of persons em- ployed.
Pig iron,	13	322	3,015
Rolling mills, general product,	32	324	43,533
Iron and steel sheets and plates,	14	294	8,327
Plate and bar,	3	302	2,709
Steel,	13	285	14,578
Architectural cast and wrought iron work, ..	4	305	1,755
Iron forgings,	4	295	670
Nails and spikes,	10	229	2,360
Nuts and bolts,	2	304	955
Pipes and tubes,	4	279	1,720
Iron foundries and machine works,	25	305	4,091
Stoves, ranges, heaters, etc,	9	247	1,304
Hardware,	4	268	1,926
Malleable iron,	2	292	746
Saws, edged tools, etc.,	5	301	3,079
Metal and metallic goods,	8	324	1,809
Locomotives and engines,	14	306	14,795
Engines and boilers,	6	303	1,409
Boilers,	7	307	512
Bridges,	4	284	975
Car springs,	1	300	177
Car couplers,	1	303	905
Cars and car wheels,	8	304	3,184
Ship building,	1	302	915
Rubber boots and shoes,	1	243	500
Woolen yarns,	10	274	1,706
Cotton yarns,	3	306	264

YEAR 1899.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Aggregate amount of wages paid.	Average yearly earnings.	Value of product	Value of pro- duct during the year to each em- ploye.	Average daily wage.
\$1,502,193	\$498 24	\$14,277,497	\$4,735 49	\$1 55
26,368,594	605 72	169,222,486	3,887 22	1 87
4,781,188	574 18	22,050,830	2,648 11	1 95
1,391,372	513 21	5,472,624	2,020 16	1 70
7,540,393	517 24	29,873,149	2,049 20	1 81
971,114	553 34	3,143,891	1,791 39	1 81
373,752	557 84	1,806,887	2,696 85	1 89
800,175	339 06	3,363,000	1,552 12	1 48
520,681	545 22	1,686,712	1,766 19	1 80
831,654	483 52	4,625,429	2,689 20	1 73
2,198,285	537 35	6,795,327	1,661 04	1 76
635,413	487 28	1,798,904	1,379 53	1 97
753,877	391 42	2,019,722	1,048 66	1 46
389,287	521 83	887,905	1,190 22	1 79
1,583,828	514 40	4,559,222	1,480 75	1 71
896,108	495 36	4,101,137	2,267 07	1 53
8,797,896	594 65	25,412,790	1,717 66	1 94
728,062	516 72	2,792,857	1,982 15	1 71
237,840	464 53	1,273,424	2,487 16	1 51
408,803	419 29	2,748,096	2,818 56	1 48
129,115	729 46	1,045,408	5,906 26	2 43
449,000	496 13	1,668,325	1,843 45	1 64
1,763,251	553 78	5,329,637	1,673 88	1 82
483,200	528 09	1,507,546	1,647 59	1 75
175,876	351 75	1,082,260	2,164 52	1 45
524,527	307 46	4,042,767	2,369 73	1 12
87,040	329 70	460,269	1,743 44	1 08

YEAR 1899—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Character of Industries.	Number of es- tablish- ments consid- ered.	Average number of days in operation.	Total number of persons em- ployed.
Worsted yarns,	3	290	838
Miscellaneous yarns,	9	275	453
Hosiery,	13	280	3,204
Hosiery and knit goods,	3	300	456
Carpets,	24	299	6,178
Cotton and woolen goods,	12	274	1,262
Cotton goods,	17	299	4,296
Woolen goods,	16	287	4,350
Knit goods,	5	282	1,004
Worsted goods,	3	295	597
Mixed textiles,	9	300	2,431
Chenille goods,	5	292	1,614
Tapestry and table covers,	3	277	492
Silk broad goods,	4	301	3,191
Window glass, bottles and table goods,	17	264	5,979
Pianos and organs,	2	300	120
Carbons,	1	290	38
Totals,	354	301	154,422

YEAR 1899—Continued.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS.

Aggregate amount of wages paid.	Average yearly earnings.	Value of product	Value of pro- duct during the year to each em- ploye.	Average daily wage.
\$239,566	\$285 88	\$1,495,701	\$1,784 84	\$0 98
171,356	378 27	1,105,504	2,440 40	1 37
809,834	252 76	2,679,349	836 25	90
142,663	312 85	607,414	1,322 02	1 04
2,307,694	373 53	9,987,646	1,616 65	1 25
407,698	323 06	1,904,700	1,509 27	1 18
1,508,218	351 08	8,624,421	2,007 55	1 17
1,498,231	344 42	7,347,006	1,688 97	1 20
288,434	287 28	1,135,696	1,131 17	1 02
242,183	405 67	1,382,803	2,316 25	1 38
765,896	315 05	3,445,679	1,417 39	1 05
679,963	421 29	2,260,296	1,400 43	1 44
189,321	384 80	648,616	1,318 32	1 39
805,682	252 49	5,598,713	1,754 54	84
2,726,527	456 02	6,425,487	1,074 68	1 73
53,303	444 19	171,279	1,427 33	1 48
20,240	532 63	66,000	1,736 84	1 84
\$78,179,333	\$506 27	\$377,934,411	\$2,447 41	\$1 68

RESUME.

THE SAME ESTABLISHMENT FOR THE YEARS 1892, 1893, 1894, 1895, 1896,
1897, 1898 AND 1899.

Years.	Number of es- tablish- ments consid- ered.	Total number of persons em- ployed.	Aggregate amount of wages paid.	Average yearly earnings.	Value of product.
1892,	354	136,882	\$67,331,876	\$491 90	\$269,452,465
1893,	354	122,278	56,818,289	464 66	226,017,762
1894,	354	109,383	45,229,667	413 50	185,626,971
1895,	354	127,361	56,704,511	445 78	222,730,930
1896,	354	118,092	52,102,365	441 29	211,252,732
1897,	354	121,281	52,138,941	429 90	222,995,654
1898,	354	137,985	62,676,615	454 52	266,044,530
1899,	354	154,422	78,179,333	506 27	377,934,411

COMPARISON OF TOTALS, ALL ESTABLISHMENTS (354). FOR
THE YEARS ENDING 1892, 1893, 1894, 1895, 1896, 1897, 1898
and 1899

Years.	Number of establishments considered.	Total persons and amounts.	Increase(+) or decrease (—) as compared with the preceding year.		Increase(+) or decrease (—) 1899 as compared with 1892.	
			Persons and amounts.	Percentage.	Persons and amounts.	Percentage.

PERSONS EMPLOYED.

1892,	354	136,882	.....	.....	.....	.....
1893,	354	122,278	—14,604	—10.67	.....	.....
1894,	354	109,333	—12,895	—10.55	.....	.....
1895,	354	127,361	+17,978	+16.44	.....	.....
1896,	354	118,092	—9,269	—7.28	.....	.....
1897,	354	121,281	+3,189	+2.70	.....	.....
1898,	354	137,985	+16,614	+13.69	.....	.....
1899,	354	154,422	+16,437	+11.99	+17,540	+12.81

AGGREGATE WAGES PAID.

1892,	354	\$67,331,876	.....	.....	.....	.....
1893,	354	56,818,289	—\$10,513,587	—15.61	.....	.....
1894,	354	45,229,667	—11,588,622	—20.40	.....	.....
1895,	354	56,704,511	+11,474,844	+25.37	.....	.....
1896,	354	52,102,365	—4,602,146	—8.12	.....	.....
1897,	354	52,138,941	+36,576	+0.07	.....	.....
1898,	354	62,676,615	+10,537,674	+20.21	.....	.....
1899,	354	78,179,333	+15,502,718	+24.73	+10,847,457	+16.11

AVERAGE YEARLY EARNINGS.

1892,	354	\$491 90	.....	.....	.....	.....
1893,	354	464 66	—\$27 24	—5.54	.....	.....
1894,	354	413 50	—51 16	—11.01	.....	.....
1895,	354	445 78	+32 28	+7.81	.....	.....
1896,	354	441 29	—4 49	—1.01	.....	.....
1897,	354	429 90	—11 39	—2.58	.....	.....
1898,	354	454 52	+24 62	+5.73	.....	.....
1899,	354	506 27	+51 75	+11.38	+14 37	+2.92

VALUE OF PRODUCT.

1892,	154	\$269,452,465	.....	.....	.....	.....
1893,	354	226,017,762	—\$43,434,703	—16.12	.....	.....
1894,	354	185,626,971	—40,390,791	—17.87	.....	.....
1895,	354	222,730,930	+37,103,959	+19.99	.....	.....
1896,	354	211,252,732	—11,478,198	—5.15	.....	.....
1897,	354	222,995,654	+11,742,922	+5.56	.....	.....
1898,	354	266,044,530	+43,048,876	+19.30	.....	.....
1899,	354	377,934,411	+111,889,881	+42.06	+\$108,481,946	+40.26

1896 SERIES.

CAPITAL INVESTED.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

NOTE.—In this table the aggregate amount of capital invested by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896,
STEEL CASTINGS.				
1896,	7	\$5,744,982	.....	.....
1897,	7	5,316,197	—\$428,785	.....
1898,	7	5,354,846	+38,649	.....
1899,	7	5,393,523	+38,677	—\$351,459
STEEL BILLETS, SLABS, BLOOMS, ETC.				
1896,	4	13,137,175	.....	.....
1897,	4	13,218,900	+81,725	.....
1898,	4	12,718,900	—500,000	.....
1899,	4	13,318,900	+600,000	+181,725
TOOL STEEL.				
1896,	2	430,000	.....	.....
1897,	2	558,000	+128,000	.....
1898,	2	640,000	+82,000	.....
1899,	2	640,000	.....	+210,000
IRON AND STEEL SPECIALTIES.				
1896,	3	138,950	.....	.....
1897,	3	141,000	+2,050	.....
1898,	3	125,000	—16,000	.....
1899,	3	135,000	+10,000	—3,950

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	\$431,000	.....	.....
1897,	7	430,000	—\$1,000	.....
1898,	7	482,850	+52,850	.....
1899,	7	491,800	+8,950	+\$60,800
IRON SPECIALTIES.				
1896,	2	35,000	.....	.....
1897,	2	45,000	+10,000	.....
1898,	2	45,000	.....	.....
1899,	2	45,000	.....	+10,000
MALLEABLE IRON.				
1896,	4	440,000	.....	.....
1897,	4	493,925	+53,925	.....
1898,	4	532,600	+38,675	.....
1899,	4	1,527,533	+994,933	+1,087,533
BOLTS, NUTS, ETC.				
1896,	8	1,885,950	.....	.....
1897,	8	1,918,214	+32,264	.....
1898,	8	1,957,776	+39,562	.....
1899,	8	2,192,934	+235,158	+306,984
SPIKES AND RIVETS.				
1896,	2	125,000	.....	.....
1897,	2	135,000	+10,000	.....
1898,	2	132,950	—2,050	.....
1899,	2	145,000	+12,050	+20,000

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WIRE NAILS.				
1896,	3	\$905,000	.....	.....
1897,	3	905,000	.....	.....
1898,	3	905,000	.....	.....
1899,	3	925,000	+\$20,000	+\$20,000
TACKS AND SMALL NAILS.				
1896,	4	163,500	.....	.....
1897,	4	163,500	.....	.....
1898,	4	123,500	—40,000	.....
1899,	4	163,500	+40,000	.....
WIRE.				
1896,	6	515,000	.....	.....
1897,	6	522,100	+7,000	.....
1898,	6	555,600	+33,500	.....
1899,	6	665,900	+110,300	+150,900
WIRE ROPE.				
1896,	2	690,000	.....	.....
1897,	2	700,000	+10,000	.....
1898,	2	700,000	.....	.....
1899,	2	700,000	.....	+10,000
WIRE GOODS.				
1896,	4	75,950	.....	.....
1897,	4	79,450	+3,500	.....
1898,	4	80,050	+600	.....
1899,	4	85,550	+5,500	+9,600

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WAGON AND CARRIAGE AXLES.				
1896,	4	\$469,475	.....	.....
1897,	4	469,475	.....	.....
1898,	4	469,475	.....	.....
1899,	4	476,000	+\$6,525	+\$6,525
CARRIAGE AND WAGON SPRINGS.				
1896,	2	125,000	.....	.....
1897,	2	125,000	.....	.....
1898,	2	135,000	+10,000	.....
1899,	2	138,000	+3,000	+13,000
SCALES, ETC.				
1896,	5	168,500	.....	.....
1897,	5	173,500	+5,000	.....
1898,	5	178,500	+5,000	.....
1899,	5	208,500	+30,000	+40,000
STOVES, RANGES, HEATERS, ETC.				
1896,	39	5,544,712	.....	.....
1897,	39	5,607,709	+62,997	.....
1898,	39	5,680,161	+72,452	.....
1899,	39	5,616,295	—63,866	+71,583
BATH BOILERS, TANKS, ETC.				
1896,	2	52,820	.....	.....
1897,	2	54,000	+1,180	.....
1898,	2	54,000	.....	.....
1899,	2	59,000	+5,000	+6,180

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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HARDWARE SPECIALTIES.

1896,	14	\$3,077,418
1897,	14	3,246,189	+\$168,771
1898,	14	3,337,946	+91,757
1899,	14	3,559,734	+221,788	+\$482,316

EDGE TOOLS.

1896,	12	1,675,197	.....	.....
1897,	12	1,613,064	—62,133	.....
1898,	12	1,646,820	+33,756	.....
1899,	12	1,233,793	—413,027	—441,404

WRENCHES, PICKS, ETC.

1896,	5	564,000	.....	.....
1897,	5	571,000	+7,000	.....
1898,	5	571,000	.....	.....
1899,	5	571,000	.....	+7,000

LOCOMOTIVES AND CARS
BUILT AND REPAIRED.

1896,	3	1,464,400	.....	.....
1897,	3	1,464,400	.....	.....
1898,	3	1,442,800	—21,600	.....
1899,	3	1,461,400	+18,600	—3,000

WROUGHT IRON PIPE AND
TUBES.

1896,	5	13,555,000	.....	.....
1897,	5	13,505,000	—50,000	.....
1898,	5	13,505,000	.....	.....
1899,	5	14,101,131	+596,131	+546,131

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase (+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896.
CAST IRON PIPE.				
1896,	3	\$340,000	.....	.....
1897,	3	613,059	+\$273,059	.....
1898,	3	641,710	+28,651	.....
1899,	3	896,776	+255,066	+\$556,776
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	2,228,192	.....	.....
1897,	20	2,220,192	—8,000	.....
1898,	20	2,228,450	+8,258	.....
1899,	20	2,252,750	+24,300	+24,558
IRON AND STEEL BRIDGES.				
1896,	8	961,050	.....	.....
1897,	8	961,050	.....	.....
1898,	8	961,050	.....	.....
1899,	8	1,001,050	+40,000	+40,000
LOCOMOTIVES, STATIONARY ENGINES, ETC.				
1896,	9	11,222,730	.....	.....
1897,	9	11,643,157	+420,427	.....
1898,	9	12,118,787	+475,630	.....
1899,	9	12,956,218	+837,431	+1,733,488
ENGINES, BOILERS, ETC.				
1896,	10	3,908,988	.....	.....
1897,	10	3,924,988	+16,000	.....
1898,	10	3,930,783	+5,795	.....
1899,	10	4,036,999	+106,216	+128,011

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Capital.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	\$6,310,325	.....	.....
1897,	11	5,840,116	—\$470,209	.....
1898,	11	5,872,258	+32,142	.....
1899,	11	27,585,264	+21,713,006	+\$21,274,939
IRON VESSELS AND ENGINES.				
1896,	3	7,039,973	.....	.....
1897,	3	7,274,993	+235,020	.....
1898,	3	7,262,278	—12,715	.....
1899,	3	7,866,622	+604,344	+826,649
BOILERS, TANKS, STACKS, ETC.				
1896,	21	1,544,562	.....	.....
1897,	21	1,624,265	+79,703	.....
1898,	21	1,656,210	+31,945	.....
1899,	21	1,857,238	+201,028	+312,676
MACHINERY.				
1896,	21	8,798,408	.....	.....
1897,	21	8,921,924	+123,516	.....
1898,	21	9,297,253	+375,339	.....
1899,	21	9,650,673	+353,420	+852,265
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	3,041,550	.....	.....
1897,	25	3,062,486	+20,936	.....
1898,	25	3,161,069	+99,583	.....
1899,	25	3,621,293	+460,224	+579,743

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Capital.	Increase(+) or decrease (--) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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FILES, ETC.

1896,	2	\$510,000
1897,	2	510,000
1898,	2	512,000	+\$2,000
1899,	2	512,000	+\$2,000

SAWS.

1896,	3	310,000	.....	.....
1897,	3	335,000	+25,000	.....
1898,	3	335,000	.....	.....
1899,	3	335,000	.....	+25,000

PLUMBER SUPPLIES.

1896,	3	2,105,078	.....	.....
1897,	3	2,043,751	—61,327	.....
1898,	3	2,031,622	—12,129	.....
1899,	3	2,080,669	+49,047	—24,409

ELECTRICAL SUPPLIES.

1896,	4	12,815,696	.....	.....
1897,	4	12,848,743	+33,047	.....
1898,	4	13,893,503	+1,044,760	.....
1899,	4	14,018,383	+124,880	+1,202,687

SHOVELS, SPADES, SCOOPS, ETC.

1896,	8	651,100	.....	.....
1897,	8	651,100	.....	.....
1898,	8	648,100	—3,000	.....
1899,	8	648,100	.....	—3,000

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
SAFES AND VAULT DOORS.				
1896,	2	\$80,000	.....	.....
1897,	2	68,000	—\$12,000	.....
1898,	2	68,000	.....	.....
1899,	2	68,000	.....	—\$12,000
ORNAMENTAL METAL WORK.				
1896,	2	300,000	.....	.....
1897,	2	336,000	+36,000	.....
1898,	2	398,676	+62,676	.....
1899,	2	403,656	+4,980	+103,656
METAL AND METALLIC GOODS.				
1896,	3	280,400	.....	.....
1897,	3	280,400	.....	.....
1898,	3	390,000	+109,600	.....
1899,	3	390,000	.....	+109,600
BUILDING AND STRUCTURAL IRON WORK.				
1896,	2	823,000	.....	.....
1897,	2	823,000	.....	.....
1898,	2	823,000	.....	.....
1899,	2	823,000	.....	.....
IRON CHAINS.				
1896,	5	253,542	.....	.....
1897,	5	258,542	+5,000	.....
1898,	5	264,542	+6,000	.....
1899,	5	264,542	.....	+11,000

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (-) as compared with the preceding year.	Increase (+) or decrease (-) 1899 as compared with 1896.
IRON FENCES AND RAILINGS				
11896,	7	\$40,500	.....	.....
1897,	7	42,500	+\$2,000	.....
1898,	7	46,000	+3,500	.....
1899,	7	49,300	+3,300	+\$8,800
AGRICULTURAL IMPLEMENTS.				
1896,	13	2,205,000	.....	.....
1897,	13	2,207,000	+2,000	.....
1898,	13	2,243,000	+36,000	.....
1899,	13	2,003,000	-240,000	-202,000
STEAM PUMPS.				
1896,	2	280,000	.....	.....
1897,	2	376,974	+96,974	.....
1898,	2	380,871	+3,897	.....
1899,	2	433,343	+52,472	+153,343
BICYCLES.				
1896,	4	300,000	.....	.....
1897,	4	353,000	+53,000	.....
1898,	4	355,000	+2,000	.....
1899,	4	355,000	.....	+55,000
PIANOS AND ORGANS.				
1896,	3	201,000	.....	.....
1897,	3	201,000	.....	.....
1898,	3	267,000	+66,000	.....
1899,	3	291,000	+24,000	+90,000

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Capital.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
TINWARE.				
1896,	5	\$872,700	.....	.....
1897,	5	374,000	+\$1,300	.....
1898,	5	374,000	.....	.....
1899,	5	414,000	+40,000	+\$41,300
PAPER MANUFACTORIES.				
1896,	8	4,257,961	.....	.....
1897,	8	4,425,013	+167,052	.....
1898,	8	4,771,595	+346,582	.....
1899,	8	5,082,399	+310,804	+824,438
WALL PAPER.				
1896,	5	460,000	.....	.....
1897,	5	545,500	+85,500	.....
1898,	5	560,500	+15,000	.....
1899,	5	590,000	+29,500	+130,000
CIGARS.				
1896,	48	2,940,477	.....	.....
1897,	48	3,150,251	+209,774	.....
1898,	48	3,127,190	—23,061	.....
1899,	48	3,432,204	—305,014	+491,727
BOOK BINDING.				
1896,	3	125,000	.....	.....
1897,	3	126,500	+1,500	.....
1898,	3	130,000	+3,500	.....
1899,	3	131,800	+1,800	+6,800

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (-) as compared with the preceding year.	Increase (+) or decrease (-) 1899 as compared with 1896
CORDAGE ROPE AND TWINE.				
1896,	6	\$3,265,000	.....	.....
1897,	6	3,265,000	.....	.....
1898,	6	3,275,000	+\$10,000	.....
1899,	6	3,450,000	+175,000	+\$185,000
PAPER, PAPER BOXES, ENVELOPES, ETC.				
1896,	27	1,491,067	.....	.....
1897,	27	1,504,284	+13,217	.....
1898,	27	1,489,559	-14,725	.....
1899,	27	1,873,115	+383,556	+382,048
POTTERY.				
1896,	3	535,000	.....	.....
1897,	3	585,000	+50,000	.....
1898,	3	585,000	.....	.....
1899,	3	585,000	.....	+50,000
PAVING BRICK.				
1896,	9	571,200	.....	.....
1897,	9	611,500	+40,300	.....
1898,	9	639,644	+28,144	.....
1899,	9	734,478	+94,834	+163,278
BUILDING BRICK.				
1896,	36	3,633,200	.....	.....
1897,	36	3,663,847	+30,647	.....
1898,	36	3,716,886	+53,039	.....
1899,	36	3,840,684	+123,798	+207,484

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
FIRE BRICK.				
1896,	18	\$2,240,600	.....:	.....
1897,	18	2,421,783	+\$181,183	.....
1898,	18	2,556,283	+134,500	.....
1899,	18	2,746,876	+190,593	+\$506,276
SLATE ROOFING, ETC., TONNAGE.				
1896,	7	1,221,451	.....	.....
1897,	7	1,241,800	+20,349	.....
1898,	7	1,222,007	—19,793	.....
1899,	7	1,031,112	—190,895	—190,339
SLATE ROOFING, ETC., SQUARES.				
1896,	16	726,916	.....	.....
1897,	16	728,914	+1,998	.....
1898,	16	919,913	+190,999	.....
1899,	16	749,914	—169,999	+22,998
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1896,	24	14,014,300	.....	.....
1897,	24	14,029,382	+15,082	.....
1898,	24	14,182,329	+152,947	.....
1899,	24	14,277,194	+94,865	+262,894

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
GLAZED AND CHROME KID.				
1896,	7	\$3,857,983	.....	.....
1897,	7	4,068,915	+\$210,932	.....
1898,	7	4,163,993	+95,078	.....
1899,	7	4,609,490	+445,497	+\$751,507
MEN'S, WOMEN'S, MISSES' AND CHILDREN'S SHOES.				
1896,	18	2,502,618	.....	.....
1897,	18	2,615,705	+113,087	.....
1898,	18	2,735,870	+120,165	.....
1899,	18	2,726,081	-9,789	+223,463
SUSPENDERS.				
1896,	2	82,000	.....	.....
1897,	2	92,000	+10,000	.....
1898,	2	95,000	+3,000	.....
1899,	2	120,000	+25,000	+38,000
HATS AND CAPS.				
1896,	3	273,592	.....	.....
1897,	3	307,789	+34,197	.....
1898,	3	296,776	-11,013	.....
1899,	3	307,676	+10,900	+34,084
FUR AND FELT HATS.				
1896,	5	2,773,726	.....	.....
1897,	5	2,782,743	+9,017	.....
1898,	5	2,775,406	-7,337	.....
1899,	5	2,775,439	+33	+1,713

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Capital.	Increase(+) or decrease (—) as compared with the preceding year.	Increase(+) or decrease (—) 1899 as compared with 1896.
WOOL HATS.				
1896,	7	\$338,997	.....	.....
1897,	7	424,035	+385,038	.....
1898,	7	458,635	+34,600	.....
1899,	7	414,493	—44,142	+375,496
UMBRELLAS AND PARASOLS.				
1896,	6	450,435	.....	.....
1897,	6	437,000	—13,435	.....
1898,	6	355,000	—82,000	.....
1899,	6	376,000	+21,000	—74,435
DRESS TRIMMINGS, BRAIDS, ETC.				
1896,	8	1,158,296	.....	.....
1897,	8	1,176,796	+18,500	.....
1898,	8	1,229,296	+52,500	.....
1899,	8	1,319,688	+90,392	+161,392
SHIRTS AND SHIRT WAISTS.				
1896,	10	911,300	.....	.....
1897,	10	913,200	+2,000	.....
1898,	10	939,200	+25,900	.....
1899,	10	985,900	+46,700	+74,600
NECKWEAR.				
1896,	3	135,000	.....	.....
1897,	3	135,000	.....	.....
1898,	3	135,000	.....	.....
1899,	3	125,000	.....	.....

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896.
COTTON AND WOOLEN CLOTHS.				
1896,	26	\$3,393,847	.....	.....
1897,	26	3,519,446	+\$125,559	.....
1898,	26	3,518,646	—800	.....
1899,	26	3,652,467	+133,821	+\$258,620
CARPETS.				
1896,	20	3,390,625	.....	.....
1897,	20	3,480,181	+89,556	.....
1898,	20	3,579,213	+99,032	.....
1899,	20	3,943,864	+364,651	+553,239
COTTON GOODS.				
1896,	19	3,077,649	.....	.....
1897,	19	3,133,764	+58,115	.....
1898,	19	3,203,271	+67,507	.....
1899,	19	3,614,205	+410,934	+536,556
WOOLEN AND WORSTED CASSI- MERES.				
1896,	11	1,297,633	.....	.....
1897,	11	1,339,549	+41,916	.....
1898,	11	1,301,000	—38,549	.....
1899,	11	1,382,000	+81,000	+84,367
WOOLEN AND WORSTED FAB- RICS.				
1896,	17	2,994,836	.....	.....
1897,	17	3,180,727	+185,891	.....
1898,	17	3,327,892	+147,165	.....
1899,	17	3,507,180	+179,288	+512,344

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WOOLEN AND WORSTED YARNS.				
1896,	13	\$3,169,270	.....	.....
1897,	13	2,519,270	—\$650,000	.....
1898,	13	3,416,000	+896,730	.....
1899,	13	2,951,000	—465,000	—\$218,270
RUGS, YARNS, ETC.				
1896,	6	5,996,733	.....	.....
1897,	6	5,579,779	—416,954	.....
1898,	6	5,692,824	+113,045	.....
1899,	6	6,029,446	+336,622	+32,713
CARPET YARNS.				
1896,	12	998,500	.....	.....
1897,	12	1,012,575	+14,075	.....
1898,	12	1,008,008	—4,567	.....
1899,	12	1,102,532	+94,524	+104,032
COTTON YARNS.				
1896,	8	1,300,209	.....	.....
1897,	8	1,302,175	+1,966	.....
1898,	8	1,311,037	+8,862	.....
1899,	8	1,362,148	+51,111	+61,939
WORSTED YARNS.				
1896,	9	2,015,617	.....	.....
1897,	9	2,124,920	+109,303	.....
1898,	9	2,139,560	+14,640	.....
1899,	9	2,589,186	+449,626	+573,569

CAPITAL INVESTED—Continued.

COMPARISON OF AGGREGATE CAPITAL INVESTED—SAME ESTABLISHMENTS, 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
COTTON AND WOOLEN YARNS.				
1896,	5	\$883,000	.....	.....
1897,	5	978,015	+\$95,015	.....
1898,	5	978,491	+476	.....
1899,	5	994,845	+16,354	+\$111,845
WOOLEN BLANKETS, FLANNELS, ETC.				
1896,	5	669,730	.....	.....
1897,	5	687,000	+17,270	.....
1898,	5	696,500	+9,500	.....
1899,	5	794,122	+97,622	+124,392
LACE GOODS.				
1896,	3	741,000	.....	.....
1897,	3	741,300	+300	.....
1898,	3	795,000	+53,700	.....
1899,	3	860,850	+65,850	+119,850
CHENILLE GOODS.				
1896,	3	470,000	.....	.....
1897,	3	470,000	.....	.....
1898,	3	470,000	.....	.....
1899,	3	465,000	—5,000	—5,000
UPHOLSTERY GOODS.				
1896,	10	1,857,322	.....	.....
1897,	10	1,875,721	+8,399	.....
1898,	10	1,856,148	—19,573	.....
1899,	10	1,985,679	+129,531	+128,357

CAPITAL INVESTED—Continued.

COMPARISON OF CAPITAL INVESTED—SAME ESTABLISHMENTS, FOR
THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Capital.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	\$1,820,000	.....	.....
1897,	15	1,868,000	+\$48,000	.....
1898,	15	1,903,600	+35,600	.....
1899,	15	2,060,429	+156,829	+\$240,429
HOSIERY.				
1896,	33	2,132,318	.....	.....
1897,	33	2,291,951	+159,633	.....
1898,	33	2,485,041	+193,090	.....
1899,	33	3,034,145	+549,104	+901,827
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	1,874,700	.....	.....
1897,	7	1,924,700	+50,000	.....
1898,	7	2,277,500	+352,800	.....
1899,	7	2,402,500	+125,000	+527,800
SILK—BROAD GOODS AND RIB- BONS.				
1896,	3	1,675,000	.....	.....
1897,	3	1,675,000	.....	.....
1898,	3	1,685,000	+10,000	.....
1899,	3	1,720,000	+35,000	+45,000
SILK—RIBBONS.				
1896,	4	311,882	.....	.....
1897,	4	394,180	+82,298	.....
1898,	4	445,313	+51,133	.....
1899,	4	463,316	+18,003	+151,434

BASIC MATERIAL.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the aggregate cost of basic material by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered. In basic material is not included fuel or other item than that crude material out of which the product is produced.

Character of Industry and Years.	Number of establishments considered.	Basic material.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
STEEL CASTINGS.				
1896,	7	\$418,609	.....	.....
1897,	7	402,115	—\$16,494	.....
1898,	7	517,448	+115,333	.....
1899,	7	822,724	+305,276	+\$404,115
STEEL BILLETS, SLABS, BLOOMS, ETC.				
1896,	4	5,724,832	.....	.....
1897,	4	7,363,930	+1,639,098	.....
1898,	4	8,285,732	+921,802	.....
1899,	4	14,459,812	+6,174,080	+8,734,980
TOOL STEEL.				
1896,	2	143,347	.....	.....
1897,	2	72,338	—71,009	.....
1898,	2	86,525	+14,187	.....
1899,	2	92,300	+5,775	—51,047
IRON AND STEEL SPECIALTIES.				
1896,	3	41,161	.....	.....
1897,	3	44,507	+3,346	.....
1898,	3	28,028	—16,479	.....
1899,	3	38,864	+10,836	—2,297

BASIC MATERIAL.—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Basic material.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	\$141,286	.....	.....
1897,	7	122,410	—\$18,576	.....
1898,	7	157,035	+34,325	.....
1899,	7	252,496	+95,461	+\$111,210
IRON SPECIALTIES.				
1896,	2	47,113	.....	.....
1897,	2	77,228	+30,115	.....
1898,	2	45,879	—31,349	.....
1899,	2	48,083	+2,204	+970
MALLEABLE IRON.				
1896,	4	590,308	.....	.....
1897,	4	455,890	—134,418	.....
1898,	4	698,054	+242,164	.....
1899,	4	839,640	+141,586	+249,332
BOLTS, NUTS, ETC.				
1896,	8	600,739	.....	.....
1897,	8	591,791	—8,948	.....
1898,	8	713,906	+122,115	.....
1899,	8	1,456,313	+742,407	+855,574
SPIKES AND RIVETS,				
1896,	2	109,498	.....	.....
1897,	2	99,564	—9,934	.....
1898,	2	109,443	+9,879	.....
1899,	2	120,176	+10,733	+10,678

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.,	Basic material.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease(—) 1899 as compared with 1896,
WIRE NAILS.				
1896,	3	\$417,134	.....	.....
1897,	3	792,350	+\$375,216	.....
1898,	3	475,780	—316,570	.....
1899,	3	641,377	+165,597	+\$24,243
TACKS AND SMALL NAILS.				
1896,	4	18,253	.....	.....
1897,	4	40,862	—7,391	.....
1898,	4	35,049	—5,813	.....
1899,	4	68,184	+33,135	+19,931
WIRE.				
1896,	6	147,605	.....	.....
1897,	6	151,647	+4,042	.....
1898,	6	192,883	+41,236	.....
1899,	6	200,037	+7,154	+52,432
WIRE ROPE.				
1896,	2	292,275	.....	.....
1897,	2	230,111	—62,164	.....
1898,	2	248,135	+18,024	.....
1899,	2	361,009	+112,874	+68,734
WIRE GOODS.				
1896,	4	20,611	.....	.....
1897,	4	31,563	+10,952	.....
1898,	4	37,195	+5,632	.....
1899,	4	53,686	+16,491	+33,075

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Basic material.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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WAGON AND CARRIAGE AXLES.

1896,	4	\$140,166
1897,	4	145,815	+\$5,649
1898,	4	126,841	—18,974
1899,	4	252,082	+125,241	+\$111,916

CARRIAGE AND WAGON SPRINGS.

1896,	2	30,822	.....	.....
1897,	2	22,096	—8,726	.....
1898,	2	20,082	—2,014	.....
1899,	2	30,286	+10,204	—536

SCALES, ETC.

1896,	5	83,428	.....	.....
1897,	5	88,826	+5,398	.....
1898,	5	92,725	+3,899	.....
1899,	5	116,309	+23,584	+32,881

STOVES, RANGES, HEATERS, ETC.

1896,	39	862,626	.....	.....
1897,	39	860,896	—1,730	.....
1898,	39	885,939	+25,043	.....
1899,	39	1,103,907	+217,968	+241,281

BATH BOILERS, TANKS, ETC.

1896,	2	33,394	.....	.....
1897,	2	31,163	—2,231	.....
1898,	2	30,676	—487	.....
1899,	2	44,809	+14,133	+11,415

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Basic material.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
HARDWARE SPECIALTIES.				
1896,	14	\$637,416	.....	.....
1897,	14	668,089	+\$30,673	.....
1898,	14	701,185	+33,096	.....
1899,	14	1,053,817	+352,632	+\$416,401
EDGE TOOLS.				
1896,	12	453,478	.....	.....
1897,	12	223,034	—230,144	.....
1898,	12	293,289	+70,255	.....
1899,	12	399,445	+106,156	—54,033
WRENCHES, PICKS, ETC.				
1896,	5	118,234	.....	.....
1897,	5	152,785	+34,551	.....
1898,	5	143,063	—9,732	.....
1899,	5	228,910	+85,847	+110,676
LOCOMOTIVES AND CARS BUILT AND REPAIRED.				
1896,	3	3,738,754	.....	.....
1897,	3	3,276,309	—507,445	.....
1898,	3	4,191,152	+914,843	.....
1899,	3	5,634,355	+1,443,203	+1,895,601
WROUGHT IRON PIPE AND TUBES.				
1896,	5	7,973,945	.....	.....
1897,	5	7,101,673	—872,272	.....
1898,	5	8,285,486	+1,183,813	.....
1899,	5	15,485,996	+7,200,510	+7,512,051

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered,	Basic material.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896,
CAST IRON PIPE.				
1896,	3	\$573,580	.....	.....
1897,	3	767,967	+\$194,387	.....
1898,	3	810,511	+42,544	.....
1899,	3	912,507	+101,996	+\$338,927
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	1,202,796	.....	.....
1897,	20	1,173,538	—29,258	.....
1898,	20	1,435,795	+262,257	.....
1899,	20	2,312,490	+876,695	+1,109,694
IRON AND STEEL BRIDGES.				
1896,	8	2,008,501	.....	.....
1897,	8	1,731,721	—276,780	.....
1898,	8	2,126,144	+394,423	.....
1899,	8	3,193,878	+1,067,734	+1,185,377
LOCOMOTIVES, STATIONARY ENGINES, ETC.				
1896,	9	4,229,510	.....	.....
1897,	9	3,933,971	—295,539	.....
1898,	9	5,386,109	+1,452,138	.....
1899,	9	8,606,253	+3,220,144	+4,376,743
ENGINES, BOILERS, ETC.				
1896,	10	1,557,093	.....	.....
1897,	10	1,325,287	—231,806	.....
1898,	10	1,514,153	+188,866	.....
1899,	10	2,331,697	+817,544	+774,604

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Basic material.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	\$2,270,778	.....	.....
1897,	11	1,938,862	—\$331,916	.....
1898,	11	2,757,366	+818,504	.....
1899,	11	10,447,921	+7,690,555	+\$8,177,143
IRON VESSELS AND ENGINES.				
1896,	3	1,923,035	.....	.....
1897,	3	2,020,859	+97,824	.....
1898,	3	2,997,076	+976,217	.....
1899,	3	5,117,337	+2,120,261	+3,194,302
BOILERS, TANKS, STACKS, ETC.				
1896,	21	761,415	.....	.....
1897,	21	863,908	+102,493	.....
1898,	21	1,172,463	+308,555	.....
1899,	21	1,848,563	+676,100	+1,087,148
MACHINERY.				
1896,	21	1,741,304	.....	.....
1897,	21	1,698,519	—42,785	.....
1898,	21	2,030,334	+331,815	.....
1899,	21	3,239,736	+1,209,402	+1,498,432
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	875,986	.....	.....
1897,	25	1,049,859	+173,873	.....
1898,	25	1,263,302	+213,443	.....
1899,	25	1,925,085	+661,783	+1,049,099

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.,	Basic material.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896,
FILES, ETC.				
1896,	2	\$95,440	.....	.....
1897,	2	92,201	—\$3,239	.....
1898,	2	82,739	—9,462	.....
1899,	2	105,104	+22,365	+\$9,664
SAWS.				
1896,	3	37,000	.....	.....
1897,	3	26,812	—10,188	.....
1898,	3	28,087	+1,275	.....
1899,	3	31,600	+3,513	—5,400
PLUMBER SUPPLIES.				
1896,	3	*	.....	.....
1897,	3	*	.....	.....
1898,	3	*	.....	.....
1899,	3	552,190	.....	.....
ELECTRICAL SUPPLIES.				
1896,	4	1,337,362	.....	.....
1897,	4	1,365,199	+27,837	.....
1898,	4	2,340,407	+975,208	.....
1899,	4	3,573,084	+1,232,677	+2,235,722
SHOVELS, SPADES, SCOOPS, ETC.				
1896,	8	313,871	.....	.....
1897,	8	276,019	—37,852	.....
1898,	8	296,298	+20,279	.....
1899,	8	465,999	+169,701	+152,128

*Incomplete returns.

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.,	Basic material.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896,
SAFES AND VAULT DOORS.				
1896,	2	\$66,274	.....	.....
1897,	2	63,173	—\$3,101	.....
1898,	2	65,984	+2,811	.....
1899,	2	65,539	—445	—\$735
ORNAMENTAL METAL WORK.				
1896,	2	178,406	.....	.....
1897,	2	178,204	—202	.....
1898,	2	221,243	+43,039	.....
1899,	2	295,511	+74,268	+117,105
METAL AND METALLIC GOODS.				
1896,	3	47,136	.....	.....
1897,	3	50,060	+2,924	.....
1898,	3	58,176	+8,116	.....
1899,	3	82,334	+24,158	+35,198
BUILDING AND STRUCTURAL IRON WORK.				
1896,	2	522,584	.....	.....
1897,	2	686,899	+164,315	.....
1898,	2	1,241,336	+554,437	.....
1899,	2	1,227,578	—13,758	+704,994
IRON CHAINS.				
1896,	5	127,022	.....	.....
1897,	5	126,244	—778	.....
1898,	5	165,742	+39,498	.....
1899,	5	252,412	+86,670	+125,390

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.,	Basic material.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896,
IRON FENCES AND RAILINGS				
1896,	7	\$47,937	.....	.....
1897,	7	58,623	+\$10,686	.....
1898,	7	81,971	+23,348	.....
1899,	7	133,235	+51,264	+\$85,298
AGRICULTURAL IMPLEMENTS.				
1896,	13	1,055,157	.....	.....
1897,	13	1,053,199	—1,958	.....
1898,	13	1,211,977	+158,778	.....
1899,	13	1,441,729	+229,752	+386,572
STEAM PUMPS.				
1896,	2	146,725	.....	.....
1897,	2	127,524	—19,201	.....
1898,	2	123,813	—3,711	.....
1899,	2	176,738	+52,925	+30,013
BICYCLES.				
1896,	4	456,736	.....	.....
1897,	4	555,666	+98,930	.....
1898,	4	539,652	—16,014	.....
1899,	4	352,343	—187,309	—104,393
PIANOS AND ORGANS.				
1896,	3	79,456	.....	.....
1897,	3	83,973	+4,517	.....
1898,	3	105,843	+21,870	.....
1899,	3	109,037	+3,194	+29,581

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.,	Basic material.	Increase(+) or decrease (—) as compared with the preced- ing year.	Increase (+) or decrease (—) 1899 as compared with 1896,
TINWARE.				
1896,	5	\$218,233	.....	.....
1897,	5	216,243	—\$1,990	.....
1898,	5	217,433	+1,190	.....
1899,	5	272,376	+54,943	+\$54,143
PAPER MANUFACTORIES.				
1896,	8	1,583,061 ¹	.....	.....
1897,	8	1,451,820	—131,241	.....
1898,	8	1,486,541	+34,721	.....
1899,	8	1,739,547	+253,006	+156,486
WALL PAPER.				
1896,	5	545,913	.....	.....
1897,	5	639,153	+93,245	.....
1898,	5	754,409	+115,251	.....
1899,	5	797,042	+42,633	+251,129
CIGARS.				
1896,	48	2,837,367	.....	.....
1897,	48	3,363,965	+526,598	.....
1898,	48	3,773,579	+409,614	.....
1899,	48	3,918,794	+145,215	+1,081,427
BOOK BINDING.				
1896,	3	62,699	.....	.....
1897,	3	62,018	—681	.....
1898,	3	65,522	+3,504	.....
1899,	3	77,379	+11,857	+14,680

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.,	Basic material.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896,
CORDAGE ROPE AND TWINE.				
1896,	6	\$3,369,846	.....	.....
1897,	6	3,491,548	+\$121,702	.....
1898,	6	3,532,381	+40,833	.....
1899,	6	4,519,784	+987,403	+\$1,149,938
PAPER, PAPER BOXES, ENVELOPES, ETC.				
1896,	27	936,025	.....	.....
1897,	27	967,556	+31,531	.....
1898,	27	1,044,300	+76,744	.....
1899,	27	1,129,745	+85,445	+193,720
POTTERY.				
1896,	3	73,655	.....	.....
1897,	3	72,400	—1,255	.....
1898,	3	73,789	+1,389	.....
1899,	3	71,004	—2,785	—2,651
PAVING BRICK.				
1896,	9	40,586	.....	.....
1897,	9	32,756	—7,830	.....
1898,	9	29,613	—3,143	.....
1899,	9	48,232	+18,619	+7,646
BUILDING BRICK.				
1896,	36	174,712	.....	.....
1897,	36	170,443	—4,269	.....
1898,	36	175,355	+4,912	.....
1899,	36	181,298	+5,943	+6,586

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered,	Basic material.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896,
FIRE BRICK.				
1896,	18	\$423,138	.....	.....
1897,	18	382,434	—\$40,704	.....
1898,	18	418,484	+36,050	.....
1899,	18	552,972	+134,488	+\$129,834
SLATE ROOFING, ETC., TONNAGE.				
1896,	7	32,540	.....	.....
1897,	7	40,436	+7,896	.....
1898,	7	37,321	—3,115	.....
1899,	7	36,761	—560	+4,221
SLATE ROOFING, ETC., SQUARES.				
1896,	16	64,217	.....	.....
1897,	16	72,911	+8,694	.....
1898,	16	74,829	+1,918	.....
1899,	16	84,414	+9,585	+20,197
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1896,	24	1,739,748	.....	.....
1897,	24	1,868,578	+128,830	.....
1898,	24	1,844,725	—23,853	.....
1899,	24	2,082,801	+238,076	+343,053

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.,	Basic material.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896,
GLAZED AND CHROME KID.				
1896,	7	\$5,635,016	.....	.....
1897,	7	7,036,904	+\$1,401,888	.....
1898,	7	8,092,540	+1,055,636	.....
1899,	7	11,007,875	+2,915,335	+\$5,372,859
MEN'S, WOMEN'S, MISSES' AND CHILDREN'S SHOES.				
1896,	18	3,221,688	.....	.....
1897,	18	3,553,381	+331,693	.....
1898,	18	3,782,316	+228,935	.....
1899,	18	3,843,639	+61,323	+621,951
SUSPENDERS.				
1896,	2	200,936	.....	.....
1897,	2	233,500	+32,564	.....
1898,	2	245,000	+11,500	.....
1899,	2	315,000	+70,000	+114,064
HATS AND CAPS.				
1896,	3	284,490	.....	.....
1897,	3	418,877	+134,387	.....
1898,	3	377,205	—41,672	.....
1899,	3	433,669	+56,464	+149,179
FUR AND FELT HATS.				
1896,	5	443,621	.....	.....
1897,	5	476,658	+33,037	.....
1898,	5	494,817	+18,159	.....
1899,	5	593,645	+98,828	+150,024

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.,	Basic material.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896,
WOOL HATS.				
1896,	7	\$270,432	.....	.....
1897,	7	343,808	+\$73,376	.....
1898,	7	314,029	—29,779	.....
1899,	7	333,533	+19,504	+\$63,101
UMBRELLAS AND PARASOLS.				
1896,	6	815,202	.....	.....
1897,	6	865,091	+49,889	.....
1898,	6	860,178	—4,913	.....
1899,	6	790,038	—70,140	—25,164
DRESS TRIMMINGS, BRAIDS, ETC.				
1896,	8	536,719	.....	.....
1897,	8	685,631	+148,912	.....
1898,	8	876,508	+190,877	.....
1899,	8	912,697	+36,189	+375,978
SHIRTS AND SHIRT WAISTS.				
1896,	10	996,847	.....	.....
1897,	10	988,269	—8,578	.....
1898,	10	1,155,581	+167,312	.....
1899,	10	1,361,980	+206,399	+365,133
NECKWEAR.				
1896,	3	217,642	.....	.....
1897,	3	200,833	—16,809	.....
1898,	3	214,342	+13,509	.....
1899,	3	261,882	+47,540	+44,240

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.,	Basic material.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896,
COTTON AND WOOLEN CLOTHS.				
1896,	26	\$2,980,495	.....	.....
1897,	26	3,874,071	+\$893,576	.....
1898,	26	3,880,272	+6,201	.....
1899,	26	4,877,112	+996,840	+\$1,896,617
CARPETS.				
1896,	20	2,332,148	.....	.....
1897,	20	3,077,136	+744,988	.....
1898,	20	3,040,388	—36,748	.....
1899,	20	3,773,518	+733,130	+1,441,370
COTTON GOODS.				
1896,	19	1,634,827	.....	.....
1897,	19	1,711,664	+76,837	.....
1898,	19	1,701,401	—10,263	.....
1899,	19	1,919,415	+218,014	+284,588
WOOLEN AND WORSTED CASSIMERES.				
1896,	11	1,034,784	.....	.....
1897,	11	1,449,509	+414,725	.....
1898,	11	1,581,776	+132,267	.....
1899,	11	2,058,438	+476,662	+1,023,654
WOOLEN AND WORSTED FABRICS.				
1896,	17	2,093,613	.....	.....
1897,	17	2,981,503	+887,890	.....
1898,	17	3,071,629	+90,126	.....
1899,	17	3,554,014	+482,385	+1,460,401

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Basic material.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896,
WOOLEN AND WORSTED YARNS.				
1896,	13	\$1,953,445	.....	.....
1897,	13	2,512,458	+\$559,013	.....
1898,	13	2,461,312	—51,146	.....
1899,	13	3,135,044	+673,732	+\$1,181,599
RUGS, YARNS, ETC.				
1896,	6	2,176,255	.....	.....
1897,	6	2,174,431	—1,824	.....
1898,	6	2,010,467	—163,964	.....
1899,	6	2,192,280	+181,813	+16,025
CARPET YARNS.				
1896,	12	889,240	.....	.....
1897,	12	1,326,068	+436,828	.....
1898,	12	980,471	—345,597	.....
1899,	12	1,314,047	+333,576	+424,807
COTTON YARNS.				
1896,	8	778,744	.....	.....
1897,	8	775,158	—3,586	.....
1898,	8	792,559	+17,401	.....
1899,	8	830,654	+38,095	+51,910
WORSTED YARNS.				
1896,	9	1,338,892	.....	.....
1897,	9	2,059,975	+721,083	.....
1898,	9	1,792,724	—267,251	.....
1899,	9	2,860,743	+1,068,019	+1,521,851

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.,	Basic material.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896,
COTTON AND WOOLEN YARNS.				
1896,	5	\$487,965	.....	.....
1897,	5	528,826	+\$40,861	.....
1898,	5	490,796	—38,030	.....
1899,	5	455,214	—35,582	—\$32,751
WOOLEN BLANKETS, FLANNELS, ETC.				
1896,	5	620,465	.....	.....
1897,	5	638,333	+17,868	.....
1898,	5	1,133,808	+495,475	.....
1899,	5	815,512	—318,296	+195,047
LACE GOODS.				
1896,	3	190,499	.....	.....
1897,	3	252,059	+61,560	.....
1898,	3	290,322	+38,263	.....
1899,	3	350,185	+59,863	+159,686
CHENILLE GOODS.				
1896,	3	297,395	.....	.....
1897,	3	329,695	+32,300	.....
1898,	3	356,595	+26,900	.....
1899,	3	365,058	+8,463	+67,663
UPHOLSTERY GOODS.				
1896,	10	1,427,820	.....	.....
1897,	10	1,498,449	+70,629	.....
1898,	10	1,626,165	+127,716	.....
1899,	10	1,730,220	+104,055	+302,400

BASIC MATERIAL—Continued.

COMPARISON OF AGGREGATE COST OF BASIC MATERIAL—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.,	Basic material.	Increase (+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	\$1,881,765	.....	.....
1897,	15	2,085,804	+\$204,039	.....
1898,	15	2,187,425	+101,621	.....
1899,	15	2,336,176	+148,751	+\$454,411
HOSIERY.				
1896,	33	1,684,783	.....	.....
1897,	33	2,174,574	+489,791	.....
1898,	33	2,370,349	+195,775	.....
1899,	33	2,400,854	+30,505	+716,071
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	2,441,078	.....	.....
1897,	7	3,397,403	+956,325	.....
1898,	7	3,818,644	+421,241	.....
1899,	7	4,779,556	+960,912	+2,338,478
SILK—BROAD GOODS AND RIB- BONS.				
1896,	3	732,000	.....	.....
1897,	3	1,025,655	+293,655	.....
1898,	3	1,220,000	+194,345	.....
1899,	3	1,350,000	+130,000	+618,000
SILK—RIBBONS.				
1896,	4	309,883	.....	.....
1897,	4	459,658	+149,775	.....
1898,	4	514,851	+55,193	.....
1899,	4	517,973	+3,122	+208,090

DAYS IN OPERATION.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the average number of days of employment by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
STEEL CASTINGS.				
1896,	7	290	.....	.....
1897,	7	310	+20	.....
1898,	7	310	.....	.....
1899,	7	302	—8	+12
STEEL BILLETS, SLABS, BLOOMS, ETC.				
1896,	4	204	.....	.....
1897,	4	291	+87	.....
1898,	4	286	—5	.....
1899,	4	295	+9	+91
TOOL STEEL.				
1896,	2	267	.....	.....
1897,	2	250	—17	.....
1898,	2	321	+71	.....
1899,	2	300	—21	+33
IRON AND STEEL SPECIALTIES.				
1896,	3	297	.....	.....
1897,	3	285	—12	.....
1898,	3	287	+2	.....
1899,	3	288	+1	—9

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compar- ed with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	256	.....	.....
1897,	7	281	+25	.....
1898,	7	293	+12	.....
1899,	7	300	+7	+44
IRON SPECIALTIES.				
1896,	2	301	.....	.....
1897,	2	301	.....	.....
1898,	2	301	.....	.....
1899,	2	301	.....	.....
MALLEABLE IRON.				
1896,	4	292	.....	.....
1897,	4	292	.....	.....
1898,	4	298	+6	.....
1899,	4	298	.....	+6
BOLTS, NUTS, ETC.				
1896,	8	235	.....	.....
1897,	8	262	+27	.....
1898,	8	274	+12	.....
1899,	8	284	+10	+49
SPIKES AND RIVETS.				
1896,	2	279	.....	.....
1897,	2	284	+5	.....
1898,	2	291	+7	.....
1899,	2	272	—19	—7

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
WIRE NAILS.				
1896,	3	236	.....	.....
1897,	3	247	+11	.....
1898,	3	180	-67	.....
1899,	3	133	-47	-103
TACKS AND SMALL NAILS.				
1896,	4	226	.....	.....
1897,	4	209	-17	.....
1898,	4	248	+39	.....
1899,	4	280	+32	+54
WIRE.				
1896,	6	289	.....	.....
1897,	6	271	-18	.....
1898,	6	311	+40	.....
1899,	6	318	+7	+29
WIRE ROPE.				
1896,	2	302	.....	.....
1897,	2	303	+1	.....
1898,	2	303	.....	.....
1899,	2	304	+1	+2
WIRE GOODS.				
1896,	4	290	.....	.....
1897,	4	299	+9	.....
1898,	4	303	+4	.....
1899,	4	303	.....	+13

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase (+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
WAGON AND CARRIAGE AXLES.				
1896,	4	252	.....	.....
1897,	4	278	+26	.....
1898,	4	292	+14	.....
1899,	4	287	—5	+35
CARRIAGE AND WAGON SPRINGS.				
1896,	2	271	.....	.....
1897,	2	260	—11	.....
1898,	2	269	+9	.....
1899,	2	265	—4	—6
SCALES, ETC.				
1896,	5	278	.....	.....
1897,	5	287	+9	.....
1898,	5	299	+12	.....
1899,	5	302	+3	+24
STOVES, RANGES, HEATERS, ETC.				
1896,	39	209	.....	.....
1897,	39	228	+19	.....
1898,	39	237	+9	.....
1899,	39	254	+17	+45
BATH BOILERS, TANKS, ETC.				
1896,	2	309	.....	.....
1897,	2	305	—4	.....
1898,	2	302	—3	.....
1899,	2	304	+2	—5

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
HARDWARE SPECIALTIES.				
1896,	14	260	.....	.....
1897,	14	270	+10	.....
1898,	14	256	—14	.....
1899,	14	280	+24	+20
EDGE TOOLS.				
1896,	12	246	.....	.....
1897,	12	227	—19	.....
1898,	12	291	+64	.....
1899,	12	294	+3	+48
WRENCHES, PICKS, ETC.				
1896,	5	240	.....	.....
1897,	5	266	+26	.....
1898,	5	283	+17	.....
1899,	5	293	+10	+53
LOCOMOTIVES AND CARS BUILT AND REPAIRED.				
1896,	3	273	.....	.....
1897,	3	282	+9	.....
1898,	3	296	+14	.....
1899,	3	304	+8	+31
WROUGHT IRON PIPE AND TUBES.				
1896,	5	283	.....	.....
1897,	5	298	+15	.....
1898,	5	303	+5	.....
1899,	5	269	—34	—14

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (−) as compared with the preceding year.	Increase (+) or decrease (−) 1899 as compared with 1896.
CAST IRON PIPE.				
1896,	3	303	.....	.....
1897,	3	302	—1	.....
1898,	3	296	—6	.....
1899,	3	252	—44	—51
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	296	.....	.....
1897,	20	295	—1	.....
1898,	20	298	+3	.....
1899,	20	303	+5	+7
IRON AND STEEL BRIDGES.				
1896,	8	294	.....	.....
1897,	8	298	+4	.....
1898,	8	302	+4	.....
1899,	8	280	—22	—14
LOCOMOTIVES, STATIONARY, ENGINES, ETC.				
1896,	9	306	.....	.....
1897,	9	306	.....	.....
1898,	9	305	—1	.....
1899,	9	307	+2	+1
ENGINES, BOILERS, ETC.				
1896,	10	295	.....	.....
1897,	10	294	—1	.....
1898,	10	304	+10	.....
1899,	10	301	—3	+6

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	260	.....	.....
1897,	11	280	+20	.....
1898,	11	295	+15	.....
1899,	11	309	+14	+49
IRON VESSELS AND ENGINES.				
1896,	3	306	.....	.....
1897,	3	305	—1	.....
1898,	3	304	—1	.....
1899,	3	296	—8	—10
BOILERS, TANKS, STACKS, ETC.				
1896,	21	286	.....	.....
1897,	21	285	—1	.....
1898,	21	291	+6	.....
1899,	21	304	+13	+18
MACHINERY.				
1896,	21	301	.....	.....
1897,	21	309	+8	.....
1898,	21	300	—9	.....
1899,	21	302	+2	+1
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	286	.....	.....
1897,	25	295	+9	.....
1898,	25	296	+1	.....
1899,	25	304	+8	+18

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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FILES, ETC.

1896,	2	275
1897,	2	266	—9
1898,	2	278	+12
1899,	2	302	+24	+27

SAWS.

1896,	3	229
1897,	3	210	—19
1898,	3	244	+34	.....
1899,	3	250	+6	+21

PLUMBER SUPPLIES.

1896,	3	281	.....	.....
1897,	3	269	—12	.....
1898,	3	290	+21	.....
1899,	3	312	+22	+31

ELECTRICAL SUPPLIES.

1896,	4	289	.....	.....
1897,	4	297	+8	.....
1898,	4	301	+4	.....
1899,	4	302	+1	+13

SHOVELS, SPADES, SCOOPS, ETC.

1896,	8	210	.....	.....
1897,	8	219	+9	.....
1898,	8	246	+27	.....
1899,	8	281	+35	+71

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
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SAFES AND VAULT DOORS.

1896,	2	307
1897,	2	301	—6
1898,	2	298	—3
1899,	2	294	—4	—13

ORNAMENTAL METAL WORK.

1896,	2	302	.....	.....
1897,	2	295	—7	.....
1898,	2	297	+2	.....
1899,	2	300	+3	—2

METAL AND METALLIC GOODS.

1896,	3	234	.....	.....
1897,	3	258	+24	.....
1898,	3	255	—3	.....
1899,	3	265	+10	+31

BUILDING AND STRUCTURAL
IRON WORK.

1896,	2	301	.....	.....
1897,	2	302	+1	.....
1898,	2	307	+5	.....
1899,	2	305	—2	+4

IRON CHAINS.

1896,	5	264	.....	.....
1897,	5	272	+8	.....
1898,	5	298	+26	.....
1899,	5	296	—2	+32

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
IRON FENCES AND RAILINGS.				
1896,	7	293	.....	.....
1897,	7	298	+5	.....
1898,	7	305	+7	.....
1899,	7	303	-2	+10
AGRICULTURAL IMPLEMENTS.				
1896,	13	285	.....	.....
1897,	13	293	+8	.....
1898,	13	300	+7	.....
1899,	13	298	-2	+13
STEAM PUMPS.				
1896,	2	307	.....	.....
1897,	2	307	.....	.....
1898,	2	304	-3	.....
1899,	2	301	-3	-6
BICYCLES.				
1896,	4	274	.....	.....
1897,	4	280	+6	.....
1898,	4	277	-3	.....
1899,	4	274	-3	.....
PIANOS AND ORGANS.				
1896,	3	296	.....	.....
1897,	3	306	+10	.....
1898,	3	297	-9	.....
1899,	3	302	+5	+6

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896.
TINWARE.				
1896,	5	301	.....	.....
1897,	5	301	.....	.....
1898,	5	300	—1	.....
1899,	5	301	+1	.....
PAPER MANUFACTORIES.				
1896,	8	262	.....	.....
1897,	8	277	+15	.....
1898,	8	283	+6	.....
1899,	8	284	+1	+22
WALL PAPER.				
1896,	5	238	.....	.....
1897,	5	266	+28	.....
1898,	5	274	+8	.....
1899,	5	275	+1	+37
CIGARS.				
1896,	48	287	.....	.....
1897,	48	291	+4	.....
1898,	48	293	+2	.....
1899,	48	295	+2	+8
BOOK BINDING.				
1896,	3	301	.....	.....
1897,	3	280	—21	.....
1898,	3	283	+3	.....
1899,	3	280	—3	—21

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	In crease (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896.
CORDAGE ROPE AND TWINE.				
1896,	6	288	.....	.....
1897,	6	317	+29	.....
1898,	6	312	—5	.....
1899,	6	312	.....	+24
PAPER, PAPER BOXES, ENVEL- OPES, ETC.				
1896,	27	297	.....	.....
1897,	27	301	+4	.....
1898,	27	302	+1	.....
1899,	27	303	+1	+6
POTTERY.				
1896,	3	283	.....	.....
1897,	3	279	—4	.....
1898,	3	289	+10	.....
1899,	3	286	—3	+3
PAVING BRICK.				
1896,	9	246	.....	.....
1897,	9	244	—2	.....
1898,	9	229	—15	.....
1899,	9	234	—5	—12
BUILDING BRICK.				
1896,	36	227	.....	.....
1897,	36	225	—2	.....
1898,	36	217	—8	.....
1899,	36	218	+1	—9

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
FIRE BRICK.				
1896,	18	283	.....	.....
1897,	18	281	—2	.....
1898,	18	243	—38	.....
1899,	18	249	+6	—34
SLATE ROOFING, ETC., TON- NAGE.				
1896,	7	234	.....	.....
1897,	7	230	—4	.....
1898,	7	248	+18	.....
1899,	7	241	—7	+7
SLATE ROOFING, ETC., SQUARES				
1896,	16	240	.....	.....
1897,	16	240	.....	.....
1898,	16	180	—60	.....
1899,	16	245	+65	+5
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1896,	24	242	.....	.....
1897,	24	263	+21	.....
1898,	24	276	+13	.....
1899,	24	263	—3	+21

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as compared with 1896.
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GLAZED AND CHROME KID.

1896,	7	299
1897,	7	301	+2
1898,	7	298	-3
1899,	7	300	+2	+1

MEN'S, WOMEN'S, MISSES' AND CHILDREN'S SHOES.

1896,	18	280	.....	.....
1897,	18	291	+11	.....
1898,	18	288	-3	.....
1899,	18	298	+10	+18

SUSPENDERS.

1896,	2	295	.....	.....
1897,	2	403	+108	.....
1898,	2	297	-106	.....
1899,	2	299	+2	+4

HATS AND CAPS.

1896,	3	284	.....	.....
1897,	3	289	+5	.....
1898,	3	286	-3	.....
1899,	3	283	-3	-1

FUR AND FELT HATS.

1896,	5	307	.....	.....
1897,	5	308	+1	.....
1898,	5	307	-1	.....
1899,	5	309	+2	+2

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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WOOL HATS.

1896,	7	274
1897,	7	260	—14
1898,	7	279	+19
1899,	7	266	—13	—8

UMBRELLAS AND PARASOLS.

1896,	6	307	.....	.....
1897,	6	308	+1	.....
1898,	6	308	.....	.....
1899,	6	308	.....	+1

DRESS TRIMMINGS, BRAIDS,
ETC.

1896,	8	287	.....	.....
1897,	8	295	+8	.....
1898,	8	298	+3	.....
1899,	8	301	+3	+14

SHIRTS AND SHIRT WAISTS.

1896,	10	284	.....	.....
1897,	10	297	+13	.....
1898,	10	298	+1	.....
1899,	10	298	.....	+14

NECKWEAR.

1896,	3	308	.....	.....
1897,	3	306	—2	.....
1898,	3	308	+2	.....
1899,	3	308	.....	.....

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
COTTON AND WOOLEN CLOTHS.				
1896,	26	269	.....	.....
1897,	26	287	+18	.....
1898,	26	265	—22	.....
1899,	26	273	+8	+4
CARPETS.				
1896,	20	263	.....	.....
1897,	20	290	+27	.....
1898,	20	290	.....	.....
1899,	20	299	+9	+36
COTTON GOODS.				
1896,	19	259	.....	.....
1897,	19	278	+19	.....
1898,	19	290	+12	.....
1899,	19	295	+5	+36
WOOLEN AND WORSTED CASSIMERES.				
1896,	11	270	.....	.....
1897,	11	277	+7	.....
1898,	11	262	—15	.....
1899,	11	281	+19	+11
WOOLEN AND WORSTED FABRICS.				
1896,	17	248	.....	.....
1897,	17	289	+41	.....
1898,	17	288	—1	.....
1899,	17	296	+8	+48

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average number of days in operation.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
WOOLEN AND WORSTED YARNS.				
1896,	13	251	.....	.....
1897,	13	290	+39	.....
1898,	13	288	—2	.....
1899,	13	293	+5	+42
RUGS, YARNS, ETC.				
1896,	6	256	.....	.....
1897,	6	273	+17	.....
1898,	6	280	+7	.....
1899,	6	287	+7	+31
CARPET YARNS.				
1896,	12	264	.....	.....
1897,	12	295	+31	.....
1898,	12	261	—34	.....
1899,	12	296	+35	+32
COTTON YARNS.				
1896,	8	263	.....	.....
1897,	8	277	+14	.....
1898,	8	294	+17	.....
1899,	8	290	—4	+27
WORSTED YARNS.				
1896,	9	239	.....	.....
1897,	9	289	+50	.....
1898,	9	273	—16	.....
1899,	9	275	+2	+36

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average number of days in opera- tion.	Increase(+) or decrease (-) as com- pared with the preceed- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
COTTON AND WOOLEN YARNS.				
1896,	5	269	.....	.....
1897,	5	291	+22	.....
1898,	5	293	+2	.....
1899,	5	299	+6	+30
WOOLEN BLANKETS, FLAN- NELS, ETC.				
1896,	5	304	.....	.....
1897,	5	301	-3	.....
1898,	5	351	+50	.....
1899,	5	279	-72	-25
LACE GOODS.				
1896,	3	274	.....	.....
1897,	3	296	+22	.....
1898,	3	307	+11	.....
1899,	3	305	-2	+31
CHENILLE GOODS.				
1896,	3	279	.....	.....
1897,	3	300	+21	.....
1898,	3	300	.....	.....
1899,	3	300	.....	+21
UPHOLSTERY GOODS.				
1896,	10	294	.....	.....
1897,	10	299	+5	.....
1898,	10	301	+2	.....
1899,	10	290	-11	-4

DAYS IN OPERATION—Continued.

COMPARISON OF AVERAGE NUMBER OF DAYS IN OPERATION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- 'ered.	Average number of days in opera- tion.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	272	.....	.....
1897,	15	289	+17	.....
1898,	15	281	—8	.....
1899,	15	280	—1	+8
HOSIERY.				
1896,	33	257	.....	.....
1897,	33	289	+32	.....
1898,	33	285	—4	.....
1899,	33	281	—4	+24
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	269	.....	.....
1897,	7	301	+32	.....
1898,	7	290	—11	.....
1899,	7	279	—11	+10
SILK—BROAD GOODS AND RIB- BONS.				
1896,	3	301	.....	.....
1897,	3	301	.....	.....
1898,	3	302	+1	.....
1899,	3	301	—1	.....
SILK—RIBBONS.				
1896,	4	298	.....	.....
1897,	4	299	+1	.....
1898,	4	299	.....	.....
1899,	4	293	—6	—5

PERSONS EMPLOYED.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the average number of persons employed by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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STEEL CASTINGS.

1896,	7	1,016
1897,	7	1,068	+52
1898,	7	1,363	+295
1899,	7	1,705	+342	+689

STEEL BILLETS, SLABS,
BLOOMS, ETC.

1896,	4	1,392	.....	.....
1897,	4	1,278	—114	.....
1898,	4	1,475	+197	.....
1899,	4	1,802	+327	+410

TOOL STEEL.

1896,	2	150	.....	.....
1897,	2	149	—1	.....
1898,	2	204	+55	.....
1899,	2	199	—5	+49

IRON AND STEEL SPECIALTIES.

1896,	3	139	.....	.....
1897,	3	152	+13	.....
1898,	3	131	—21	.....
1899,	3	140	+9	+1

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	254	.....	.....
1897,	7	244	—10	.....
1898,	7	318	+74	.....
1899,	7	395	+77	+141
IRON SPECIALTIES.				
1896,	2	37	.....	.....
1897,	2	45	+8	.....
1898,	2	35	—10	.....
1899,	2	31	—4	—6
MALLEABLE IRON.				
1896,	4	1,575	.....	.....
1897,	4	1,404	—171	.....
1898,	4	1,640	+236	.....
1899,	4	1,831	+191	+256
BOLTS, NUTS, ETC.				
1896,	8	942	.....	.....
1897,	8	966	+24	.....
1898,	8	1,010	+44	.....
1899,	8	1,268	+258	+326
SPIKES AND RIVETS.				
1896,	2	46	.....	.....
1897,	2	51	+5	.....
1898,	2	55	+4	.....
1899,	2	53	—2	+7

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
WIRE NAILS.				
1896,	3	459	.....	.....
1897,	3	599	+140	.....
1898,	3	615	+16	...
1899,	3	680	+65	+221
TACKS AND SMALL NAILS.				
1896,	4	118	.....	.....
1897,	4	114	-4	.....
1898,	4	68	-46	.....
1899,	4	158	+90	+40
WIRE.				
1896,	6	132	.....	.....
1897,	6	150	+18	.....
1898,	6	167	+17	.....
1899,	6	202	+35	+70
WIRE ROPE.				
1896,	2	158	.....	.....
1897,	2	166	+8	.....
1898,	2	190	+24	.....
1899,	2	232	+42	+74
WIRE GOODS.				
1896,	4	80	.....	.....
1897,	4	88	+8	.....
1898,	4	107	+19	.....
1899,	4	127	+20	+47

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896
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WAGON AND CARRIAGE AXLES.

1896,	4	310
1897,	4	313	+3
1898,	4	362	+49
1899,	4	447	+85	+137

CARRIAGE AND WAGON
SPRINGS.

1896,	2	43	.....	.....
1897,	2	40	—3	.....
1898,	2	41	+1	.....
1899,	2	47	+6	+4

SCALES, ETC.

1896,	5	120	.....	.....
1897,	5	131	+11	.....
1898,	5	144	+13	.....
1899,	5	168	+24	+48

STOVES, RANGES, HEATERS,
ETC.

1896,	39	3,532	.....	.....
1897,	39	3,628	+96	.....
1898,	39	3,712	+84	.....
1899,	39	3,777	+65	+245

BATH BOILERS, TANKS, ETC.

1896,	2	26	.....	.....
1897,	2	28	+2	.....
1898,	2	32	+4	.....
1899,	2	45	+13	+19

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
HARDWARE SPECIALTIES.				
1896,	14	2,509	.....	.....
1897,	14	2,643	+134	.....
1898,	14	2,871	+228	.....
1899,	14	3,307	+436	+798
EDGE TOOLS.				
1896,	12	818	.....	.....
1897,	12	827	+9	.....
1898,	12	878	+51	.....
1899,	12	1,018	+140	+200
WRENCHES, PICKS, ETC.				
1896,	5	248	.....	.....
1897,	5	293	+45	.....
1898,	5	272	—21	.....
1899,	5	341	+69	+93
LOCOMOTIVES AND CARS BUILT AND REPAIRED.				
1896,	3	6,254	.....	.....
1897,	3	5,742	—512	.....
1898,	3	5,965	+223	.....
1899,	3	6,655	+690	+401
WROUGHT IRON PIPE AND TUBES.				
1896,	5	5,324	.....	.....
1897,	5	5,110	—214	.....
1898,	5	5,693	+583	.....
1899,	5	8,754	+3,061	+3,430

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Total number of wage earners.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896
CAST IRON PIPE.				
1896,	3	507	.....	.....
1897,	3	615	+108	.....
1898,	3	689	+74	.....
1899,	3	740	+51	+233
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	1,308	.....	.....
1897,	20	1,266	—42	.....
1898,	20	1,427	+161	.....
1899,	20	1,663	+236	+355
IRON AND STEEL BRIDGES.				
1896,	8	1,169	.....	.....
1897,	8	1,177	+8	.....
1898,	8	1,423	+246	.....
1899,	8	1,680	+257	+511
LOCOMOTIVES, STATIONARY, ENGINES, ETC.				
1896,	9	5,587	.....	.....
1897,	9	5,651	+64	.....
1898,	9	7,967	+2,316	.....
1899,	9	9,827	+1,860	+4,240
ENGINES, BOILERS, ETC.				
1896,	10	1,922	.....	.....
1896,	10	1,690	—232	.....
1898,	10	1,904	+214	.....
1899,	10	2,163	+259	+241

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered	Total number of wage earners.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	2,240	.....	.....
1897,	11	2,306	+66	.....
1898,	11	3,130	+824	.....
1899,	11	6,343	+3,213	+4,103
IRON VESSELS AND ENGINES.				
1896,	3	4,044	.....	.....
1897,	3	3,447	—597	.....
1898,	3	5,384	+1,937	.....
1899,	3	6,188	+804	+2,144
BOILERS, TANKS, STACKS, ETC.				
1896,	21	1,161	.....	.....
1897,	21	1,128	—33	.....
1898,	21	1,386	+258	.....
1899,	21	1,627	+241	+466
MACHINERY.				
1896,	21	3,721	.....	.....
1897,	21	3,853	+132	.....
1898,	21	4,434	+581	.....
1899,	21	5,630	+1,196	+1,909
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	2,127	.....	.....
1897,	25	2,101	—26	.....
1898,	25	2,447	+346	.....
1899,	25	3,104	+657	+977

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
FILES, ETC.				
1896,	2	331	.....	.....
1897,	2	346	+15	.....
1898,	2	369	+23	.....
1899,	2	394	+25	+63
SAWS.				
1896,	3	56	.....	.....
1897,	3	50	—6	.....
1898,	3	47	—3	.....
1899,	3	47	.....	—9
PLUMBER SUPPLIES.				
1896,	3	960	.....	.....
1897,	3	921	—39	.....
1898,	3	965	+44	.....
1899,	3	1,046	+81	+86
ELECTRICAL SUPPLIES.				
1896,	4	2,528	.....	.....
1897,	4	2,173	—355	.....
1898,	4	3,499	+1,326	.....
1899,	4	5,184	+1,685	+2,656
SHOVELS, SPADES, SCOOPS, ETC.				
1896,	8	545	.....	.....
1897,	8	511	—34	.....
1898,	8	528	+17	.....
1899,	8	563	+35	+18

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
SAFES AND VAULT DOORS.				
1896,	2	128	.....	.....
1897,	2	125	—3	.....
1898,	2	121	—4	.....
1899,	2	120	—1	—8
ORNAMENTAL METAL WORK.				
1896,	2	282	.....	.....
1897,	2	273	—9	.....
1898,	2	405	+132	.....
1899,	2	410	+5	+128
METAL AND METALLIC GOODS.				
1896,	3	194	.....	.....
1897,	3	207	+13	.....
1898,	3	225	+18	.....
1899,	3	269	+44	+75
BUILDING AND STRUCTURAL IRON WORK.				
1896,	2	752	.....	.....
1897,	2	662	—90	.....
1898,	2	841	+179	.....
1899,	2	1,240	+399	+488
IRON CHAINS.				
1896,	5	231	.....	.....
1897,	5	231	.....	.....
1898,	5	269	+38	.....
1899,	5	299	+30	+68

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (−) as com- pared with the preced- ing year.	Increase (+) or de- crease (−) 1899 as compared with 1896.
IRON FENCES AND RAILINGS.				
1896,	7	79	.....	.....
1897,	7	100	+21	.....
1898,	7	126	+26	.....
1899,	7	155	+29	+76
AGRICULTURAL IMPLEMENTS.				
1896,	13	1,415	.....	.....
1897,	13	1,424	+9	.....
1898,	13	1,599	+175	.....
1899,	13	1,695	+96	+280
STEAM PUMPS.				
1896,	2	153	.....	.....
1897,	2	140	−13	.....
1898,	2	151	+11	.....
1899,	2	225	+74	+72
BICYCLES.				
1896,	4	305	.....	.....
1897,	4	335	+30	.....
1898,	4	418	+83	.....
1899,	4	345	−73	+40
PIANOS AND ORGANS.				
1896,	3	163	.....	.....
1897,	3	152	−11	.....
1898,	3	171	+19	.....
1899,	3	176	+5	+13

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
TINWARE.				
1896,	5	284	.....	.....
1897,	5	275	—9	.....
1898,	5	278	+3	.....
1899,	5	275	—3	—9
PAPER MANUFACTORIES.				
1896,	8	1,521	.....	.....
1897,	8	1,474	—47	.....
1898,	8	1,483	+9	.....
1899,	8	1,681	+198	+160
WALL PAPER.				
1896,	5	482	.....	.....
1897,	5	501	+19	.....
1898,	5	527	+26	.....
1899,	5	528	+1	+46
CIGARS.				
1896,	48	6,748	.....	.....
1897,	48	7,481	+733	.....
1898,	48	7,970	+489	.....
1899,	48	8,480	+510	+1,732
BOOK BINDING.				
1896,	3	138	.....	.....
1897,	3	137	—1	.....
1898,	3	156	+19	.....
1899,	3	176	+20	+38

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
CORDAGE ROPE AND TWINE.				
1896,	6	2,063	.....	.....
1897,	6	2,129	+66	.....
1898,	6	2,106	-23	.....
1899,	6	2,211	+105	+148
PAPER, PAPER BOXES, ENVELOPES, ETC.				
1896,	27	1,826	.....	.....
1897,	27	1,911	+85	.....
1898,	27	2,472	+561	.....
1899,	27	2,302	-170	+476
POTTERY.				
1896,	3	221	.....	.....
1897,	3	225	+4	.....
1898,	3	238	+13	.....
1899,	3	244	+6	+23
PAVING BRICK.				
1896,	9	515	.....	.....
1897,	9	507	-8	.....
1898,	9	590	+83	.....
1899,	9	801	+211	+286
BUILDING BRICK.				
1896,	36	1,969	.....	.....
1897,	36	1,882	-87	.....
1898,	36	1,930	+48	.....
1899,	36	1,919	-11	-50

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Total number of wage earners.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
FIRE BRICK.				
1896,	18	1,868	.....	.....
1897,	18	1,928	+60	.....
1898,	18	2,227	+399	.....
1899,	18	2,947	+620	+1,079
SLATE ROOFING, ETC., TON- NAGE.				
1896,	7	934	.....	.....
1897,	7	910	—24	.....
1898,	7	852	—52	.....
1899,	7	754	—98	—180
SLATE ROOFING, ETC., SQUARES				
1896,	16	1,368	.....	.....
1897,	16	1,458	+90	.....
1898,	16	1,964	+506	.....
1899,	16	1,647	—317	+279
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1896,	24	7,890	.....	.....
1897,	24	7,964	+74	.....
1898,	24	8,572	+608	.....
1899,	24	9,759	+1,187	+1,869

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
GLAZED AND CHROME KID.				
1896,	7	2,725	.....	.....
1897,	7	3,255	+530	.....
1898,	7	3,745	+490	.....
1899,	7	4,598	+853	+1,873
MEN'S, WOMEN'S, MISSES' AND CHILDREN'S SHOES.				
1896,	18	3,815	.....	.....
1897,	18	4,032	+217	.....
1898,	18	4,268	+236	.....
1899,	18	4,008	—260	+193
SUSPENDERS.				
1896,	2	110	.....	.....
1897,	2	120	+10	.....
1898,	2	127	+7	.....
1899,	2	162	+35	+52
HATS AND CAPS.				
1896,	3	490	.....	.....
1897,	3	489	—1	.....
1898,	3	560	+71	.....
1899,	3	560	.....	+70
FUR AND FELT HATS.				
1896,	5	963	.....	.....
1897,	5	1,048	+85	.....
1898,	5	1,257	+209	.....
1899,	5	1,412	+155	+449

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
WOOL HATS.				
1896,	7	395	.....	.....
1897,	7	447	+52	.....
1898,	7	480	+33	.....
1899,	7	537	+57	+142
UMBRELLAS AND PARASOLS.				
1896,	6	688	.....	.....
1897,	6	667	-21	.....
1898,	6	579	-88	.....
1899,	6	599	+20	-89
DRESS TRIMMINGS, BRAIDS, ETC.				
1896,	8	1,104	.....	.....
1897,	8	1,393	+289	.....
1898,	8	1,543	+150	.....
1899,	8	1,760	+217	+656
SHIRTS AND SHIRT WAISTS.				
1896,	10	1,854	.....	.....
1897,	10	1,869	+15	.....
1898,	10	2,035	+166	.....
1899,	10	2,340	+335	+516
NECKWEAR.				
1896,	3	190	.....	.....
1897,	3	174	-16	.....
1898,	3	183	+9	.....
1899,	3	195	+12	+5

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896.
COTTON AND WOOLEN CLOTHS.				
1896,	26	4,560	.....	.....
1897,	26	4,863	+303	.....
1898,	26	4,834	—29	.....
1899,	26	5,340	+506	+780
CARPETS.				
1896,	20	2,486	.....	.....
1897,	20	2,958	+472	.....
1898,	20	2,982	+24	.....
1899,	20	3,113	+131	+627
COTTON GOODS.				
1896,	19	3,146	.....	.....
1897,	19	3,208	+62	.....
1898,	19	3,361	+153	.....
1899,	19	3,641	+280	+495
WOOLEN AND WORSTED CASSI- MERES.				
1896,	11	1,373	.....	.....
1897,	11	1,572	+199	.....
1898,	11	1,700	+128	.....
1899,	11	1,928	+228	+555
WOOLEN AND WORSTED FAB- RICS.				
1896,	17	2,817	.....	.....
1897,	17	3,343	+526	.....
1898,	17	3,195	—148	.....
1899,	17	3,439	+244	+622

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
WOOLEN AND WORSTED YARNS.				
1896,	13	1,721	.....	.....
1897,	13	1,817	+96	.....
1898,	13	1,750	—67	.....
1899,	13	1,800	+50	+79
RUGS, YARNS, ETC.				
1896,	6	3,428	.....	.....
1897,	6	3,369	—59	.....
1898,	6	3,226	—143	.....
1899,	6	3,365	+139	—63
CARPET YARNS.				
1896,	12	595	.....	.....
1897,	12	657	+62	.....
1898,	12	609	—48	.....
1899,	12	665	+56	+70
COTTON YARNS.				
1896,	8	720	.....	.....
1897,	8	759	+39	.....
1898,	8	845	+86	.....
1899,	8	850	+5	+130
WORSTED YARNS.				
1896,	9	1,406	.....	.....
1897,	9	1,823	+417	.....
1898,	9	1,795	+28	.....
1899,	9	1,839	+44	+433

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
COTTON AND WOOLEN YARNS.				
1896,	5	637	.....	.....
1897,	5	696	+59	.....
1898,	5	716	+20	.....
1899,	5	728	+12	+91
WOOLEN BLANKETS, FLAN- NELS, ETC.				
1896,	5	717	.....	.....
1897,	5	719	+2	.....
1898,	5	1,063	+344	.....
1899,	5	967	—96	+250
LACE GOODS.				
1896,	3	763	.....	.....
1897,	3	855	+92	.....
1898,	3	974	+119	.....
1899,	3	1,098	+124	+335
CHENILLE GOODS.				
1896,	3	610	.....	.....
1897,	3	668	+58	.....
1898,	3	599	—69	.....
1899,	3	601	+2	—9
UPHOLSTERY GOODS.				
1896,	10	1,938	.....	.....
1897,	10	2,059	+121	.....
1898,	10	2,127	+68	.....
1899,	10	2,278	+151	+340

PERSONS EMPLOYED—Continued.

COMPARISON OF NUMBER OF WAGE EARNERS—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of es- tablish- ments consid- ered.	Total number of wage earners.	Increase (+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	2,469	.....	.....
1897,	15	2,705	+236	.....
1898,	15	2,708	+3	.....
1899,	15	3,002	+294	+533
HOSIERY.				
1896,	33	5,050	.....	.....
1897,	33	5,847	+807	.....
1898,	33	6,138	+291	.....
1899,	33	6,360	+222	+1,320
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	2,494	.....	.....
1897,	7	3,643	+1,149	.....
1898,	7	3,947	+304	.....
1899,	7	3,761	-186	+1,267
SILK—BROAD GOODS AND RIB- BONS.				
1896,	3	1,376	.....	.....
1897,	3	2,121	+745	.....
1898,	3	2,283	+162	.....
1899,	3	2,077	-206	+701
SILK—RIBBONS.				
1896,	4	431	.....	.....
1897,	4	535	+104	.....
1898,	4	634	+99	.....
1899,	4	644	+10	+213

AGGREGATE WAGES PAID.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the aggregate amount of wages paid by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of establishments considered.	Aggregate wages paid.	Increase(+) or decrease (--) as compared with the preceding year.	Increase (+) or decrease (--) 1899 as compared with 1896.
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STEEL CASTINGS.

1896,	7	\$463,012
1897,	7	478,303	+\$15,291
1898,	7	619,179	+140,876
1899,	7	838,679	+219,500	+\$375,667

STEEL BILLETS, SLABS,
BLOOMS, ETC.

1896,	4	621,985	.....	.....
1897,	4	630,474	+8,489	.....
1898,	4	873,163	+242,689	.....
1899,	4	1,239,839	+366,676	+617,854

TOOL STEEL.

1896,	2	84,496	.....	.....
1897,	2	72,164	—12,782	.....
1898,	2	150,952	+78,788	.....
1899,	2	138,361	—12,591	+53,865

IRON AND STEEL SPECIALTIES.

1896,	3	51,102	.....	.....
1897,	3	51,996	+894	.....
1898,	3	37,751	—14,245	.....
1899,	3	49,584	+11,833	—1,518

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	\$121,567	.....	.....
1897,	7.	120,823	—\$744	.....
1898,	7	175,796	+54,973	.....
1899,	7	249,106	+73,310	+\$127,539
IRON SPECIALTIES.				
1896,	2	17,700	.....	.....
1897,	2	22,700	+5,000	.....
1898,	2	18,700	—4,000	.....
1899,	2	18,350	—350	+650
MALLEABLE IRON.				
1896,	4	709,933	.....	.....
1897,	4	647,054	—62,879	.....
1898,	4	776,815	+129,761	.....
1899,	4	928,417	+151,602	+218,484
BOLTS, NUTS, ETC.				
1896,	8	361,981	.....	.....
1897,	8	308,126	—53,855	.....
1898,	8	348,639	+40,513	.....
1899,	8	477,994	+129,355	+116,013
SPIKES AND RIVETS.				
1896,	2	19,883	.....	.....
1897,	2	18,219	—1,664	.....
1898,	2	19,724	+1,505	.....
1899,	2	17,821	—1,903	—2,062

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Aggregate wages paid.	Increase(+) or decrease (--) as compared with the preceding year	Increase (+) or decrease (--) 1899 as compared with 1896
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WIRE NAILS.

1896,	3	\$140,100
1897,	3	230,387	+\$90,287
1898,	3	167,475	—62,912
1899,	3	229,328	+61,853	+\$89,228

TACKS AND SMALL NAILS.

1896,	4	34,122	.....	.....
1897,	4	31,752	—2,370	.....
1898,	4	24,483	—7,269	.....
1899,	4	54,460	+29,977	+20,338

WIRE.

1896,	6	60,328	.....	.....
1897,	6	60,682	+354	.....
1898,	6	79,965	+19,283	.....
1899,	6	99,740	+19,775	+39,412

WIRE ROPE.

1896,	2	70,108	.....	.....
1897,	2	74,810	+4,702	.....
1898,	2	88,858	+14,048	.....
1899,	2	113,217	+24,359	+43,109

WIRE GOODS.

1896,	4	20,708	.....	.....
1897,	4	27,354	+6,646	.....
1898,	4	27,923	+569	.....
1899,	4	35,879	+7,956	+15,171

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase (+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as compared with 1896.
WAGON AND CARRIAGE AXLES.				
1896,	4	\$146,138	.....	.....
1897,	4	158,329	+\$12,191	.....
1898,	4	189,439	+31,110	.....
1899,	4	233,815	+44,376	+\$87,677
CARRIAGE AND WAGON SPRINGS.				
1896,	2	24,877	.....	.....
1897,	2	20,799	—4,078	.....
1898,	2	21,078	+279	.....
1899,	2	23,957	+2,879	—920
SCALES, ETC.				
1896,	5	69,550	.....	.....
1897,	5	74,385	+4,835	.....
1898,	5	81,860	+7,475	.....
1899,	5	101,360	+19,500	+31,810
STOVES, RANGES, HEATERS, ETC.				
1896,	39	1,663,392	.....	.....
1897,	39	1,683,743	+20,351	.....
1898,	39	1,793,402	+109,659	.....
1899,	39	2,021,127	+227,725	+357,735
BATH BOILERS, TANKS, ETC.				
1896,	2	12,091	.....	.....
1897,	2	12,498	+407	.....
1898,	2	13,611	+1,113	.....
1899,	2	19,448	+5,837	+7,357

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase(+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
HARDWARE SPECIALTIES.				
1896,	14	\$1,004,650	.....	.....
1897,	14	1,053,746	+\$49,096	.....
1898,	14	1,127,879	+74,133	.....
1899,	14	1,428,934	+301,055	+\$424,284
EDGE TOOLS.				
1896,	12	356,401	.....	.....
1897,	12	304,988	—51,413	.....
1898,	12	401,694	+96,706	.....
1899,	12	474,562	+72,868	+118,161
WRENCHES, PICKS, ETC.				
1896,	5	106,369	.....	.....
1897,	5	123,034	+16,665	.....
1898,	5	139,125	+16,091	.....
1899,	5	179,408	+40,283	+73,039
LOCOMOTIVES AND CARS BUILT AND REPAIRED.				
1896,	3	3,035,897	.....	.....
1897,	3	3,019,356	—16,541	.....
1898,	3	3,411,544	+392,188	.....
1899,	3	4,049,295	+637,751	+1,013,398
WROUGHT IRON PIPE AND TUBES.				
1896,	5	2,170,688	.....	.....
1897,	5	2,045,620	—125,068	.....
1898,	5	2,451,501	+405,881	.....
1899,	5	4,566,297	+2,114,796	+2,395,609

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
CAST IRON PIPE.				
1896,	3	\$209,338	.....	.....
1897,	3	250,934	+\$41,596	.....
1898,	3	263,550	+12,616	.....
1899,	3	260,355	—3,195	+\$51,017
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	560,714	.....	.....
1897,	20	535,753	—24,961	.....
1898,	20	641,481	+105,728	.....
1899,	20	775,144	+133,663	+214,430
IRON AND STEEL BRIDGES.				
1896,	8	590,081	.....	.....
1897,	8	564,817	—25,264	.....
1898,	8	647,664	+82,847	.....
1899,	8	722,759	+75,095	+132,678
LOCOMOTIVES, STATIONARY ENGINES, ETC.				
1896,	9	3,137,295	.....	.....
1897,	9	3,032,837	—104,458	.....
1898,	9	4,559,167	+1,526,330	.....
1899,	9	5,764,855	+1,205,688	+2,627,560
ENGINES, BOILERS, ETC.				
1896,	10	1,003,538	.....	.....
1897,	10	840,896	—162,642	.....
1898,	10	996,882	+155,986	.....
1899,	10	1,185,494	+188,612	+181,956

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase (+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as com- pared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	\$971,616	.....	.....
1897,	11	928,180	—\$43,436	.....
1898,	11	1,491,520	+563,340	.....
1899,	11	3,359,489	+1,867,969	+\$2,387,873
IRON VESSELS AND ENGINES.				
1896,	3	2,320,747	.....	.....
1897,	3	1,881,993	—438,754	.....
1898,	3	2,880,847	+998,854	.....
1899,	3	3,428,153	+547,306	+1,107,406
BOILERS, TANKS, STACKS, ETC.				
1896,	21	542,277	.....	.....
1897,	21	535,025	—7,252	.....
1898,	21	639,883	+104,858	.....
1899,	21	780,279	+140,396	+238,002
MACHINERY.				
1896,	21	1,955,967	.....	.....
1897,	21	1,970,570	+14,603	.....
1898,	21	2,402,335	+431,765	.....
1899,	21	3,122,970	+720,635	+1,167,003
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	957,628	.....	.....
1897,	25	995,718	+38,090	.....
1898,	25	1,184,333	+188,615	.....
1899,	25	1,570,135	+385,802	+612,507

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered	Aggregate wages paid.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896
FILES, ETC.				
1896,	2	\$108,895	.....	.....
1897,	2	110,805	+\$1,910	.....
1898,	2	117,553	+6,748	.....
1899,	2	136,071	+18,518	+\$27,176
SAWS.				
1896,	3	25,745	.....	.....
1897,	3	21,557	—4,188	.....
1898,	3	22,939	+1,382	.....
1899,	3	24,100	+1,161	—1,645
PLUMBER SUPPLIES.				
1896,	3	418,864	.....	.....
1897,	3	377,194	—41,670	.....
1898,	3	432,969	+55,775	.....
1899,	3	502,827	+69,858	+83,963
ELECTRICAL SUPPLIES.				
1896,	4	1,276,087	.....	.....
1897,	4	1,184,647	—91,440	.....
1898,	4	1,929,920	+745,273	.....
1899,	4	2,856,814	+926,894	+1,580,727
SHOVELS, SPADES, SCOOPS, ETC.				
1896,	8	217,581	.....	.....
1897,	8	202,067	—15,514	.....
1898,	8	236,593	+34,526	.....
1899,	8	291,969	+55,376	+74,388

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
SAFES AND VAULT DOORS.				
1896,	2	\$54,556	.....	.....
1897,	2	59,906	+\$5,350	.....
1898,	2	61,012	+1,106	.....
1899,	2	59,965	—1,047	+\$5,409
ORNAMENTAL METAL WORK.				
1896,	2	177,921	.....	.....
1897,	2	158,948	—18,973	.....
1898,	2	205,995	+47,047	.....
1899,	2	210,158	+4,163	+32,237
METAL AND METALLIC GOODS.				
1896,	3	58,892	.....	.....
1897,	3	65,704	+6,812	.....
1898,	3	74,084	+8,380	.....
1899,	3	106,846	+32,762	+47,954
BUILDING AND STRUCTURAL IRON WORK.				
1896,	2	382,148	.....	.....
1897,	2	344,442	—37,706	.....
1898,	2	441,539	+97,097	.....
1899,	2	657,942	+216,403	+275,794
IRON CHAINS.				
1896,	5	91,526	.....	.....
1897,	5	96,671	+5,145	.....
1898,	5	120,291	+23,620	.....
1899,	5	140,403	+20,112	+48,877

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease(—) 1899 as compared with 1896.
IRON FENCES AND RAILINGS.				
1896,	7	\$37,512	.....	.....
1897,	7	48,923	+\$11,411	.....
1898,	7	57,197	+8,274	.....
1899,	7	69,864	+12,667	+\$32,352
AGRICULTURAL IMPLEMENTS.				
1896,	13	622,390	.....	.....
1897,	13	625,572	+3,182	.....
1898,	13	752,266	+126,694	.....
1899,	13	826,050	+73,784	+203,660
STEAM PUMPS.				
1896,	2	121,368	.....	.....
1897,	2	103,105	—18,263	.....
1898,	2	112,032	+8,927	.....
1899,	2	166,746	+54,714	+45,378
BICYCLES.				
1896,	4	159,578	.....	.....
1897,	4	192,099	+32,521	.....
1898,	4	189,355	—2,744	.....
1899,	4	152,315	—37,040	—7,263
PIANOS AND ORGANS.				
1896,	3	84,706	.....	.....
1897,	3	74,853	—9,853	.....
1898,	3	86,499	+11,646	.....
1899,	3	91,705	+5,206	+6,999

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase(+) or decrease(-) as compared with the preceding year.	Increase (+) or decrease (-) 1899 as compared with 1896.
TINWARE.				
1896,	5	\$107,539	.....	.....
1897,	5	106,907	—\$632	.....
1898,	5	103,119	—3,788	.....
1899,	5	118,410	+15,291	+\$10,871
PAPER MANUFACTORIES.				
1896,	8	580,874	.....	.....
1897,	8	588,144	+7,270	.....
1898,	8	591,810	+3,666	.....
1899,	8	688,257	+96,447	+107,383
WALL PAPER.				
1896,	5	156,068	.....	.....
1897,	5	169,043	+12,975	.....
1898,	5	188,198	+19,155	.....
1899,	5	193,842	+5,644	+37,774
CIGARS.				
1896,	48	1,910,906	.....	.....
1897,	48	2,128,366	+217,460	.....
1898,	48	2,331,843	+203,477	.....
1899,	48	2,520,043	+188,200	+609,137
BOOK BINDING.				
1896,	3	64,957	.....	.....
1897,	3	66,378	+1,421	.....
1898,	3	75,293	+8,915	.....
1899,	3	86,318	+11,025	+21,361

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate wages paid.	Increase(+) or decrease(—) as compared with the preceding year.	Increase (+) or decrease(—) 1899 as compared with 1896.
CORDAGE ROPE AND TWINE.				
1896,	6	\$621,413	.....	.....
1897,	6	687,023	+\$65,610	.....
1898,	6	679,993	—7,030	.....
1899,	6	798,522	+118,529	+\$177,109
PAPER, PAPER BOXES, ENVELOPES, ETC.				
1896,	27	494,654	.....	.....
1897,	27	511,220	+16,566	.....
1898,	27	567,743	+56,523	.....
1899,	27	678,205	+110,462	+183,551
POTTERY.				
1896,	3	100,562	.....	.....
1897,	3	96,771	—3,791	.....
1898,	3	103,249	+6,478	.....
1899,	3	105,758	+2,509	+5,196
PAVING BRICK.				
1896,	9	164,710	.....	.....
1897,	9	168,302	+3,592	.....
1898,	9	180,022	+11,720	.....
1899,	9	249,889	+69,867	+85,179
BUILDING BRICK.				
1896,	36	667,356	.....	.....
1897,	36	661,860	—5,496	.....
1898,	36	658,282	—3,578	.....
1899,	36	695,677	+37,395	+28,321

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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FIRE BRICK.

1896,	18	\$727,162
1897,	18	719,308	—\$7,854
1898,	18	843,336	+124,028
1899,	18	1,133,377	+290,041	+\$406,215

SLATE ROOFING, ETC., TON-
NAGE.

1896,	7	284,706	.....	.....
1897,	7	296,492	+11,786	.....
1898,	7	276,506	—19,986	.....
1899,	7	245,565	—30,941	—39,141

SLATE ROOFING, ETC.,
SQUARES.

1896,	16	431,365	.....	.....
1897,	16	475,599	+44,234	.....
1898,	16	509,063	+33,464	.....
1899,	16	575,890	+66,827	+144,525

WINDOW GLASS, BOTTLES AND
TABLE GOODS.

1896,	34	2,948,608	.....	.....
1897,	34	3,274,694	+326,086	.....
1898,	34	3,705,892	+431,198	.....
1899,	34	4,174,636	+468,744	+1,226,028

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
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GLAZED AND CHROME KID.

1896,	7	\$962,342
1897,	7	1,285,138	+\$322,796
1898,	7	1,472,762	+187,624
1899,	7	1,907,913	+435,151	+\$945,571

MEN'S, WOMEN'S, MISSES' AND
CHILDREN'S SHOES.

1896,	18	1,292,042	.....	.....
1897,	18	1,410,546	+118,504	.....
1898,	18	1,517,798	+107,252	.....
1899,	18	1,506,325	+11,473	+214,283

SUSPENDERS.

1896,	2	30,936	.....	.....
1897,	2	33,936	+3,000	.....
1898,	2	41,000	+7,064	.....
1899,	2	61,150	+20,150	+30,214

HATS AND CAPS.

1896,	3	121,160	.....	.....
1897,	3	179,336	+58,176	.....
1898,	3	176,383	-2,953	.....
1899,	3	191,909	+15,526	+70,749

FUR AND FELT HATS.

1896,	5	385,170	.....	.....
1897,	5	514,651	+129,481	.....
1898,	5	595,085	+80,434	.....
1899,	5	665,296	+70,211	+280,126

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase (+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as compared with 1896.
WOOL HATS.				
1896,	7	\$125,792	.....	.....
1897,	7	143,074	+\$17,282	.....
1898,	7	140,773	—2,301	.....
1899,	7	163,164	+22,391	+\$37,372
UMBRELLAS AND PARASOLS.				
1896,	6	167,380	.....	.....
1897,	6	199,856	+32,476	.....
1898,	6	157,172	—42,684	.....
1899,	6	162,654	+5,482	—4,726
DRESS TRIMMINGS, BRAIDS, ETC.				
1896,	8	299,043	.....	.....
1897,	8	380,240	+81,197	.....
1898,	8	413,277	+33,037	.....
1899,	8	479,688	+66,411	+180,645
SHIRTS AND SHIRT WAISTS.				
1896,	10	538,454	.....	.....
1897,	10	507,166	—31,288	.....
1898,	10	549,611	+42,445	.....
1899,	10	705,735	+156,124	+167,281
NECKWEAR.				
1896,	3	72,910	.....	.....
1897,	3	62,988	—9,922	.....
1898,	3	68,975	+5,987	.....
1899,	3	73,883	+4,908	+973

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate wages paid.	Increase (+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
COTTON AND WOOLEN CLOTHS.				
1896,	26	\$1,446,144	.....	.....
1897,	26	1,679,106	+\$232,962	.....
1898,	20	1,692,156	+13,050	.....
1899,	26	1,980,979	+288,823	+\$534,835
CARPETS.				
1896,	20	868,200	.....	.....
1897,	20	1,093,072	+224,872	.....
1898,	20	1,075,140	—17,932	.....
1899,	20	1,274,402	+199,262	+406,202
COTTON GOODS.				
1896,	19	891,261	.....	.....
1897,	19	1,005,644	+114,383	.....
1898,	19	1,085,787	+80,143	.....
1899,	19	1,216,453	+130,666	+325,192
WOOLEN AND WORSTED CASSIMERES.				
1896,	11	419,961	.....	.....
1897,	11	523,351	+103,390	.....
1898,	11	565,281	+41,930	.....
1899,	11	673,336	+108,055	+253,375
WOOLEN AND WORSTED FABRICS.				
1896,	17	796,935	.....	.....
1897,	17	1,054,239	+257,304	.....
1898,	17	1,074,441	+20,202	.....
1899,	17	1,223,967	+149,526	+127,032

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate wages paid.	Increase (+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
WOOLEN AND WORSTED YARNS.				
1896,	13	\$480,490	.....	.....
1897,	13	564,008	+\$83,518	.....
1898,	13	527,411	—36,597	.....
1899,	13	604,593	+77,182	+\$124,103
RUGS, YARNS, ETC.				
1896,	6	1,093,507	.....	.....
1897,	6	1,072,563	—20,944	.....
1898,	6	1,086,601	+14,038	.....
1899,	6	1,269,948	+183,347	+176,441
CARPET YARNS.				
1896,	12	201,553	.....	.....
1897,	12	245,091	+43,538	.....
1898,	12	201,918	—43,173	.....
1899,	12	254,414	+52,496	+52,861
COTTON YARNS.				
1896,	8	194,570	.....	.....
1897,	8	213,940	+19,370	.....
1898,	8	254,495	+40,555	.....
1899,	8	259,631	+5,136	+65,061
WORSTED YARNS.				
1896,	9	375,736	.....	.....
1897,	9	489,454	+113,718	.....
1898,	9	467,130	—22,324	.....
1899,	9	572,312	+105,182	+196,576

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Aggregate wages paid.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
COTTON AND WOOLEN YARNS.				
1896,	5	\$189,018	.....	.....
1897,	5	218,632	+\$29,614	.....
1898,	5	227,559	+8,927	.....
1899,	5	243,827	+16,268	+\$54,809
WOOLEN BLANKETS, FLANNELS, ETC.				
1896,	5	257,057	.....	.....
1897,	5	264,403	+7,346	.....
1898,	5	350,302	+85,899	.....
1899,	5	322,275	—28,027	+65,218
LACE GOODS.				
1896,	3	193,765	.....	.....
1897,	3	223,436	+29,671	.....
1898,	3	269,910	+46,474	.....
1899,	3	313,641	+43,731	+119,876
CHENILLE GOODS.				
1896,	3	138,438	.....	.....
1897,	3	169,224	+30,786	.....
1898,	3	171,041	+1,817	.....
1899,	3	203,598	+32,557	+65,160
UPHOLSTERY GOODS				
1896,	10	674,424	.....	.....
1897,	10	765,506	+91,082	.....
1898,	10	847,374	+81,868	.....
1899,	10	921,752	+74,378	+247,328

AGGREGATE WAGES PAID—Continued.

COMPARISON OF AGGREGATE AMOUNT OF WAGES PAID—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Aggregate wages paid.	Increase (+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	\$651,727	.....	.....
1897,	15	715,054	+\$63,327	.....
1898,	15	731,681	+16,627	.....
1899,	15	842,335	+110,654	+\$190,608
HOSIERY.				
1896,	33	1,195,059	.....	.....
1897,	33	1,435,854	+240,795	.....
1898,	33	1,537,444	+101,590	.....
1899,	33	1,669,887	+132,443	+474,828
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	628,994	.....	.....
1897,	7	840,337	+211,343	.....
1898,	7	949,659	+109,322	.....
1899,	7	1,008,474	+58,815	+379,480
SILK—BROAD GOODS AND RIB- BONS.				
1896,	3	340,255	.....	.....
1897,	3	492,634	+152,379	.....
1898,	3	533,246	+40,612	.....
1899,	3	538,597	+5,351	+198,342
SILK—RIBBONS.				
1896,	4	125,802	.....	.....
1897,	4	187,491	+61,689	.....
1898,	4	213,252	+25,761	.....
1899,	4	217,812	+4,560	+92,010

VALUE OF PRODUCT.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the value of manufactured product by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896.
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STEEL CASTINGS.

1896,	7	\$1,496,055
1897,	7	1,391,020	—\$105,035
1898,	7	2,098,933	+707,913
1899,	7	2,857,935	+759,002	+\$1,361,880

STEEL BILLETS, SLABS,
BLOOMS, ETC.

1896,	4	7,149,210	.....	.....
1897,	4	10,511,198	+3,361,988	.....
1898,	4	10,257,159	—254,039	.....
1899,	4	18,832,437	+8,575,278	+11,683,227

TOOL STEEL.

1896,	2	386,661	.....	.....
1897,	2	243,469	—143,192	.....
1898,	2	419,725	+176,256	.....
1899,	2	450,500	+30,775	+63,839

IRON AND STEEL SPECIALTIES.

1896,	3	239,897	.....	.....
1897,	3	225,744	—14,153	.....
1898,	3	201,340	—24,404	.....
1899,	3	245,980	+44,640	+6,083

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of establishments considered.	Value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	\$366,163	.....	.....
1897,	7	315,364	—\$50,799	.....
1898,	7	463,025	+147,661	.....
1899,	7	784,254	+321,229	+\$418,091
IRON SPECIALTIES.				
1896,	2	77,966	.....	.....
1897,	2	119,167	+41,201	.....
1898,	2	78,107	—41,060	.....
1899,	2	80,420	+2,313	+2,454
MALLEABLE IRON.				
1896,	4	1,933,107	.....	.....
1897,	4	1,627,267	—305,840	.....
1898,	4	2,288,315	+661,048	.....
1899,	4	2,807,229	+518,914	+874,122
BOLTS. NUTS, ETC.				
1896,	8	1,269,306	.....	.....
1897,	8	1,221,990	—47,316	.....
1898,	8	1,424,103	+202,113	.....
1899,	8	2,465,793	+1,041,690	+1,196,487
SPIKES AND RIVETS.				
1896,	2	173,749	.....	.....
1897,	2	159,246	—14,503	.....
1898,	2	190,000	+30,754	.....
1899,	2	184,040	—5,960	+10,291

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of establishments considered.	Value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (—) or decrease(+) 1899 as compared with 1896.
WIRE NAILS.				
1896,	3	\$758,704	.....	.....
1897,	3	1,346,116	+\$587,412	.....
1898,	3	908,291	—437,825	.....
1899,	3	1,648,903	+740,612	+\$890,199
TACKS AND SMALL NAILS.				
1896,	4	115,749	.....	.....
1897,	4	107,112	—8,637	.....
1898,	4	94,162	—12,950	.....
1899,	4	192,644	+98,482	+76,895
WIRE.				
1896,	6	284,418	.....	.....
1897,	6	300,614	+16,196	.....
1898,	6	367,860	+67,246	.....
1899,	6	425,022	+57,162	+140,604
WIRE ROPE.				
1896,	2	615,004	.....	.....
1897,	2	596,192	—18,812	.....
1898,	2	655,466	+59,274	.....
1899,	2	971,118	+315,652	+356,114
WIRE GOODS.				
1896,	4	67,040	.....	.....
1897,	4	99,311	+32,271	.....
1898,	4	147,568	+48,257	.....
1899,	4	179,067	+31,499	+112,027

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of establishments considered.	Value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
WAGON AND CARRIAGE AXLES.				
1896,	4	\$471,440	.....	.....
1897,	4	491,920	+\$20,480	.....
1898,	4	582,349	+90,429	.....
1899,	4	827,577	+245,228	+\$356,137
CARRIAGE AND WAGON SPRINGS.				
1896,	2	73,042	.....	.....
1897,	2	62,864	—10,178	.....
1898,	2	63,456	+592	.....
1899,	2	87,136	+23,680	+14,094
SCALES, ETC.				
1896,	5	242,692	.....	.....
1897,	5	263,089	+20,397	.....
1898,	5	276,978	+13,889	.....
1899,	5	360,965	+83,987	+118,273
STOVES, RANGES, HEATERS, ETC.				
1896,	39	4,205,094	.....	.....
1897,	39	4,267,423	+62,329	.....
1898,	39	4,317,431	+50,008	.....
1899,	39	5,154,643	+837,212	+949,549
BATH BOILERS, TANKS, ETC.				
1896,	2	61,186	.....	.....
1897,	2	63,699	+2,513	.....
1898,	2	62,102	—1,597	.....
1899,	2	89,691	+27,589	+28,505

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of establishments considered.	Value of production.	Increase (+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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HARDWARE SPECIALTIES.

1896,	14	\$2,382,624
1897,	14	2,686,482	+\$303,858
1898,	14	2,823,993	+137,511
1899,	14	3,839,960	+1,015,967	+\$1,457,336

EDGE TOOLS.

1896,	12	1,083,068	.....	.....
1897,	12	781,832	—301,236	.....
1898,	12	1,069,190	+287,358	.....
1899,	12	1,393,284	+324,094	+310,216

WRENCHES, PICKS, ETC.

1896,	5	363,054	.....	.....
1897,	5	462,043	+98,989	.....
1898,	5	494,058	+32,015	.....
1899,	5	685,497	+191,439	+322,443

LOCOMOTIVES AND CARS BUILT AND REPAIRED.

1896,	3	6,983,962	.....	.....
1897,	3	6,534,498	—449,464	.....
1898,	3	8,000,396	+1,465,898	.....
1899,	3	10,020,362	+2,019,966	+3,036,400

WROUGHT IRON PIPE AND TUBES.

1896,	5	11,907,420	.....	.....
1897,	5	11,341,565	—565,855	.....
1898,	5	14,552,862	+3,211,297	.....
1899,	5	26,160,998	+11,608,136	+14,253,578

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of es- tablish- ments consid- ered.	Value of production.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
CAST IRON PIPE.				
1896,	3	\$862,648	.....	.....
1897,	3	1,184,240	+\$321,592	.....
1898,	3	1,260,038	+75,798	.....
1899,	3	1,350,801	+90,763	+\$488,153
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	2,395,728	.....	.....
1897,	20	2,117,765	—277,963	.....
1898,	20	2,661,226	+543,461	.....
1899,	20	3,941,441	+1,280,215	+1,545,713
IRON AND STEEL BRIDGES.				
1896,	8	3,429,136	.....	.....
1897,	8	3,115,371	—313,765	.....
1898,	8	3,717,213	+601,842	.....
1899,	8	5,095,097	+1,377,884	+1,665,961
LOCOMOTIVES, STATIONARY ENGINES, ETC.				
1896,	9	8,792,061	.....	.....
1897,	9	8,531,117	—260,944	.....
1898,	9	12,862,598	+4,331,481	.....
1899,	9	17,572,598	+4,710,000	+8,780,537
ENGINES, BOILERS, ETC.				
1896,	10	3,230,705	.....	.....
1897,	10	2,658,616	—572,089	.....
1898,	10	3,088,737	+430,121	.....
1899,	10	4,574,136	+1,485,399	+1,343,431

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of es- tablish- ments con- sidered.	Value of production.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	\$4,603,466	.....	.....
1897,	11	4,359,164	—\$244,302	.....
1898,	11	8,227,597	+3,868,433	.....
1899,	11	18,549,857	+10,322,260	+\$13,946,391
IRON VESSELS AND ENGINES.				
1896,	3	4,991,255	.....	.....
1897,	3	4,588,448	—402,807	.....
1898,	3	6,635,431	+2,046,983	.....
1899,	3	9,165,761	+2,530,330	+4,174,506
BOILERS, TANKS, STACKS, ETC.				
1896,	21	1,951,211	.....	.....
1897,	21	1,904,346	—46,865	.....
1898,	21	2,455,255	+550,909	.....
1899,	21	3,454,771	+999,516	+1,503,560
MACHINERY.				
1896,	21	5,397,999	.....	.....
1897,	21	5,451,809	+53,810	.....
1898,	21	6,500,975	+1,049,166	.....
1899,	21	8,730,374	+2,229,399	+3,332,375
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	2,643,208	.....	.....
1897,	25	2,965,528	+322,320	.....
1898,	25	3,571,600	+606,072	.....
1899,	25	5,201,285	+1,629,685	+2,558,077

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of es- tablish- ments consid- ered.	Value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
FILES, ETC.				
1896,	2	\$321,222	.....	.....
1897,	2	329,583	+\$8,311	.....
1898,	2	400,465	+70,932	.....
1899,	2	456,967	+56,502	+\$135,745
SAWS.				
1896,	3	88,186	.....	.....
1897,	3	71,437	—16,749	.....
1898,	3	76,338	+4,901	.....
1899,	3	83,624	+7,286	—4,562
PLUMBER SUPPLIES.				
1896,	3	1,078,000	.....	.....
1897,	3	962,000	—116,000	.....
1898,	3	1,097,058	+135,058	.....
1899,	3	1,436,661	+339,603	+358,661
ELECTRICAL SUPPLIES.				
1896,	4	3,653,461	.....	.....
1897,	4	3,463,804	—189,657	.....
1898,	4	6,821,374	+3,357,570	.....
1899,	4	11,462,408	+4,641,034	+7,808,947
SHOVELS, SPADES, SCOOPS, ETC.				
1896,	8	813,573	.....	.....
1897,	8	803,048	—10,525	.....
1898,	8	997,314	+194,266	.....
1899,	8	1,493,946	+496,632	+680,373

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS. FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of es- tablish- ments con- sidered.	Value of production.	Increase(+) or decrease (—) as compared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
SAFES AND VAULT DOORS.				
1896,	2	\$151,546	.....	.....
1897,	2	157,476	+\$5,930	.....
1898,	2	153,085	—4,391	.....
1899,	2	156,773	+3,688	+\$5,227
ORNAMENTAL METAL WORK.				
1896,	2	443,938	.....	.....
1897,	2	420,546	—23,392	.....
1898,	2	471,296	+50,750	.....
1899,	2	557,185	+85,889	+114,247
METAL AND METALLIC GOODS.				
1896,	3	161,989	.....	.....
1897,	3	184,101	+22,112	.....
1898,	3	207,496	+23,395	.....
1899,	3	300,978	+93,482	+148,989
BUILDING AND STRUCTURAL IRON WORK.				
1896,	2	1,195,156	.....	.....
1897,	2	1,249,288	+54,132	.....
1898,	2	2,057,639	+808,351	.....
1899,	2	2,157,573	+99,934	+962,417
IRON CHAINS.				
1896,	5	331,059	.....	.....
1897,	5	336,049	+4,990	.....
1898,	5	409,304	+73,255	.....
1899,	5	584,109	+174,805	+253,050

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of establishments considered.	Value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
IRON FENCES AND RAILINGS.				
1896,	7	\$119,501	.....	.....
1897,	7	145,641	+\$26,140	.....
1898,	7	187,059	+41,418	.....
1899,	7	260,498	+73,439	+\$140,997
AGRICULTURAL IMPLEMENTS.				
1896,	13	2,351,507	.....	.....
1897,	13	2,527,451	+175,944	.....
1898,	13	2,958,496	+431,045	.....
1899,	13	3,360,835	+402,339	+1,009,328
STEAM PUMPS.				
1896,	2	334,056	.....	.....
1897,	2	249,488	—84,568	.....
1898,	2	313,511	+64,023	.....
1899,	2	411,714	+98,203	+77,658
BICYCLES.				
1896,	4	832,698	.....	.....
1897,	4	788,628	—44,070	.....
1898,	4	833,479	+44,851	.....
1899,	4	594,225	—239,254	—238,473
PIANOS AND ORGANS.				
1896,	3	220,647	.....	.....
1897,	3	213,924	—6,723	.....
1898,	3	251,421	+37,497	.....
1899,	3	298,679	+47,258	+78,032

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production.	Increase (+) or decrease (−) as com- pared with the preced- ing year.	Increase (+) or de- crease(−) 1899 as compared with 1896.
TINWARE.				
1896,	5	\$477,000	.....	.....
1897,	5	467,000	—\$10,000	.....
1898,	5	469,200	+2,200	.....
1899,	5	545,475	+76,275	+\$68,475
PAPER MANUFACTORIES.				
1896,	8	3,370,998	.....	.....
1897,	8	3,310,376	—60,622	.....
1898,	8	3,315,552	+5,176	.....
1899,	8	4,254,182	+938,630	+\$883,184
WALL PAPER.				
1896,	5	1,044,811	.....	.....
1897,	5	1,238,000	+193,189	.....
1898,	5	1,453,336	+215,336	.....
1899,	5	1,555,190	+101,854	+510,379
CIGARS.				
1896,	48	7,504,119	.....	.....
1897,	48	8,455,542	+951,423	.....
1898,	48	9,247,115	+791,573	.....
1899,	48	10,044,441	+797,326	+2,540,322
BOOK BINDING.				
1896,	3	167,856	.....	.....
1897,	3	162,373	—5,483	.....
1898,	3	180,567	+18,194	.....
1899,	3	208,527	+27,960	+40,671

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CORDAGE ROPE AND TWINE.				
1896,	6	\$4,793,024	.....	.....
1897,	6	4,729,813	—\$63,211	.....
1898,	6	4,963,813	+234,000	.....
1899,	6	6,239,058	+1,275,245	+\$1,446,034
PAPER, PAPER BOXES, ENVELOPES, ETC.				
1896,	27	2,009,846	.....	.....
1897,	27	2,049,073	+39,227	.....
1898,	27	2,282,183	+233,110	.....
1899,	27	2,473,800	+191,617	+463,954
POTTERY.				
1896,	3	254,732	.....	.....
1897,	3	243,197	—11,535	.....
1898,	3	279,866	+36,669	.....
1899,	3	291,774	+11,908	+37,042
PAVING BRICK.				
1896,	9	384,378	.....	.....
1897,	9	405,820	+21,442	.....
1898,	9	425,148	+19,328	.....
1899,	9	571,533	+146,385	+187,155
BUILDING BRICK.				
1896,	36	1,575,442	.....	.....
1897,	36	1,551,049	—24,393	.....
1898,	36	1,499,849	—51,200	.....
1899,	36	1,679,970	+180,121	+104,528

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
FIRE BRICK.				
1896,	18	\$1,639,926	.....	.....
1897,	18	1,570,074	—\$69,852	.....
1898,	18	1,915,392	+345,318	.....
1899,	18	2,486,398	+571,006	+\$846,472
SLATE ROOFING, ETC., TONNAGE.				
1896,	7	430,376	.....	.....
1897,	7	553,077	+122,701	.....
1898,	7	576,702	+23,625	.....
1899,	7	506,112	—70,590	+75,736
SLATE ROOFING, ETC., SQUARES.				
1896,	16	660,321	.....	.....
1897,	16	791,086	+130,765	.....
1898,	16	809,868	+18,782	.....
1899,	16	972,253	+162,385	+312,932
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1896,	24	6,546,509	.....	.....
1897,	24	7,461,967	+915,458	.....
1898,	24	8,504,495	+1,042,528	.....
1899,	24	9,583,487	+1,078,992	+3,036,978

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
GLAZED AND CHROME KID.				
1896,	7	\$8,049,657	.....	.....
1897,	7	10,649,292	+\$2,599,635	.....
1898,	7	12,691,322	+2,042,030	.....
1899,	7	16,342,644	+3,651,322	+\$8,292,987
MEN'S, WOMEN'S, MISSES' AND CHILDREN'S SHOES.				
1896,	18	5,638,377	.....	.....
1897,	18	6,030,847	+392,470	.....
1898,	18	6,558,748	+527,901	.....
1899,	18	6,611,046	+52,298	+972,669
SUSPENDERS.				
1896,	2	319,100	.....	.....
1897,	2	349,100	+30,000	.....
1898,	2	391,500	+42,400	.....
1899,	2	483,250	+91,750	+164,150
HATS AND CAPS.				
1896,	3	525,607	.....	.....
1897,	3	782,060	+256,453	.....
1898,	3	737,149	—44,911	.....
1899,	3	698,891	+38,258	+173,284
FUR AND FELT HATS.				
1896,	5	1,447,818	.....	.....
1897,	5	1,558,607	+110,789	.....
1898,	5	1,731,063	+172,456	.....
1899,	5	2,020,731	+289,668	+572,913

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of establishments considered.	Value of production.	Increase (-) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
WOOL HATS.				
1896,	7	\$521,966	.....	.....
1897,	7	649,061	+\$127,095	.....
1898,	7	636,904	—12,157	.....
1899,	7	746,186	+109,282	+\$224,220
UMBRELLAS AND PARASOLS.				
1896,	6	1,362,314	.....	.....
1897,	6	1,436,838	+74,524	.....
1898,	6	1,337,351	—99,487	.....
1899,	6	1,389,131	+51,780	+26,817
DRESS TRIMMINGS, BRAIDS, ETC.				
1896,	8	1,218,500	.....	.....
1897,	8	1,471,696	+253,196	.....
1898,	8	1,708,275	+236,579	.....
1899,	8	2,085,395	+377,120	+866,895
SHIRTS AND SHIRT WAISTS.				
1896,	10	2,138,737	.....	.....
1897,	10	1,982,612	—156,125	.....
1898,	10	2,211,328	+228,716	.....
1899,	10	2,708,068	+496,740	+569,331
NECKWEAR.				
1896,	3	381,745	.....	.....
1897,	3	353,886	—27,859	.....
1898,	3	375,689	+21,803	.....
1899,	3	437,720	+62,041	+55,975

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and years.	Number of establishments considered.	Value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
COTTON AND WOOLEN CLOTHS.				
1896,	26	\$5,571,616	.....	.....
1897,	26	6,565,773	+\$994,157	.....
1898,	26	6,683,097	+117,324	.....
1899,	26	8,458,150	+1,775,053	+\$2,886,534
CARPETS.				
1896,	20	3,977,283	.....	.....
1897,	20	5,026,839	+1,049,556	.....
1898,	20	5,112,683	+95,844	.....
1899,	20	6,365,985	+1,253,302	+2,388,702
COTTON GOODS.				
1896,	19	3,074,012	.....	.....
1897,	19	3,366,182	+292,170	.....
1898,	19	3,534,679	+168,497	.....
1899,	19	3,924,249	+389,570	+850,237
WOOLEN AND WORSTED CASSIMERES.				
1896,	11	1,970,251	.....	.....
1897,	11	2,618,868	+648,617	.....
1898,	11	2,799,134	+180,266	.....
1899,	11	3,548,303	+749,169	+1,578,052
WOOLEN AND WORSTED FABRICS.				
1896,	17	3,921,846	.....	.....
1897,	17	5,323,713	+1,401,867	.....
1898,	17	5,390,285	+66,572	.....
1899,	17	6,107,189	+716,904	+2,185,343

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production.	Increase (+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as compared with 1896.
WOOLEN AND WORSTED YARNS.				
1896,	13	\$2,869,351	.....	.....
1897,	13	3,781,819	+\$812,468	.....
1898,	13	4,545,227	+763,408	.....
1899,	13	5,929,440	+1,384,213	+\$2,960,089
RUGS, YARNS, ETC.				
1896,	6	4,401,046	.....	.....
1897,	6	4,406,440	+5,394	.....
1898,	6	4,309,452	-96,988	.....
1899,	6	4,884,288	+574,836	+483,242
CARPET YARNS.				
1896,	12	1,295,455	.....	.....
1897,	12	1,828,851	+533,396	.....
1898,	12	1,442,656	-386,195	.....
1899,	12	1,851,194	+408,538	+555,739
COTTON YARNS.				
1896,	8	1,166,180	.....	.....
1897,	8	1,184,831	+18,651	.....
1898,	8	1,310,385	+125,554	.....
1899,	8	1,395,941	+85,556	+229,761
WORSTED YARNS.				
1896,	9	2,263,571	.....	.....
1897,	9	3,446,514	+1,182,943	.....
1898,	9	2,990,862	-455,652	.....
1899,	9	4,496,108	+1,505,246	+2,232,537

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
COTTON AND WOOLEN YARNS.				
1896,	5	\$832,459	.....	.....
1897,	5	990,280	+\$157,821	.....
1898,	5	990,226	—54	.....
1899,	5	991,423	+1,197	+\$158,964
WOOLEN BLANKETS, FLANNELS, ETC.				
1896,	5	1,282,412	.....	.....
1897,	5	1,221,499	—60,913	.....
1898,	5	2,107,398	+885,899	.....
1899,	5	1,633,499	—463,899	+351,087
LACE GOODS.				
1896,	3	909,289	.....	.....
1897,	3	1,086,945	+177,656	.....
1898,	3	1,219,698	+132,753	.....
1899,	3	1,307,879	+88,181	+398,590
CHENILLE GOODS.				
1896,	3	502,678	.....	.....
1897,	3	573,450	+70,772	.....
1898,	3	591,280	+17,830	.....
1899,	3	664,622	+73,342	+161,944
UPHOLSTERY GOODS				
1896,	10	2,674,368	.....	.....
1897,	10	2,864,002	+189,634	.....
1898,	10	3,100,667	+236,665	.....
1899,	10	3,514,614	+413,947	+840,246

VALUE OF PRODUCT—Continued.

COMPARISON OF VALUE OF MANUFACTURED PRODUCT—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	\$3,173,444	.....	.....
1897,	15	3,585,544	+\$412,100	.....
1898,	15	3,717,921	+132,377	.....
1899,	15	4,054,739	+336,818	+\$881,295
HOSIERY.				
1896,	33	3,924,458	.....	.....
1897,	33	4,680,827	+756,369	.....
1898,	33	5,035,600	+354,773	.....
1899,	33	5,406,210	+370,610	+1,481,752
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	3,643,308	.....	.....
1897,	7	4,970,593	+1,327,285	.....
1898,	7	5,681,769	+711,176	.....
1899,	7	7,131,389	+1,449,620	+3,488,081
SILK—BROAD GOODS AND RIB- BONS.				
1896,	3	1,510,181	.....	.....
1897,	3	2,414,705	+904,524	.....
1898,	3	2,942,433	+527,728	.....
1899,	3	3,172,400	+229,967	+1,662,219
SILK—RIBBONS.				
1896,	4	705,120	.....	.....
1897,	4	895,892	+190,772	.....
1898,	4	1,067,823	+171,931	.....
1899,	4	1,038,299	—29,524	+333,179

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE.
COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the value of average annual product per employe by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. * Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of establishments considered.	Average annual product per employe.	Increase(+) or decrease(—) as compared with the preceding year.	Increase(+) or decrease(—) 1899 as compared with 1896.
STEEL CASTINGS.				
1896.	7	\$1,472 49	.....	.....
1897.	7	1,302 45	—\$170 04	.....
1898.	7	1,539 94	+237 49	.....
1899.	7	1,676 21	+136 27	+\$203 72
STEEL BILLETS, SLABS, BLOOMS, ETC.				
1896.	4	5,135 93	.....	.....
1897.	4	8,224 72	+3,088 79	.....
1898.	4	6,954 01	—1,270 71	.....
1899.	4	10,450 85	+3,496 84	+5,314 92
TOOL STEEL.				
1896.	2	2,577 74	.....*	.....
1897.	2	1,634 02	—943 72	.....
1898.	2	2,057 48	+423 46	.....
1899.	2	2,263 82	+206 34	—313 92
IRON AND STEEL SPECIALTIES.				
1896.	3	1,725 88	.....	.....
1897.	3	1,485 16	—240 72	.....
1898.	3	1,536 95	+51 79	.....
1899.	3	1,757 00	+220 05	+31 12

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	\$1,047 89	.....	.....
1897,	7	1,292 28	+\$244 39	.....
1898,	7	1,456 05	+163 77	.....
1899,	7	1,985 45	+529 40	+\$937 56
IRON SPECIALTIES.				
1896,	2	2,107 19	.....	.....
1897,	2	2,648 16	+540 97	.....
1898,	2	2,231 63	—416 53	.....
1899,	2	2,594 20	+362 57	+487 01
MALLEABLE IRON.				
1896,	4	1,227 37	.....	.....
1897,	4	1,159 02	—68 35	.....
1898,	4	1,395 31	+236 29	.....
1899,	4	1,533 17	+137 86	+305 80
BOLTS, NUTS, ETC				
1896,	8	1,347 46	.....	.....
1897,	8	1,265 00	—82 46	.....
1898,	8	1,410 00	+145 00	.....
1899,	8	1,944 63	+534 63	+597 17
SPIKES AND RIVETS.				
1896,	2	3,777 15	.....	.....
1897,	2	3,122 47	—654 68	.....
1898,	2	3,454 54	+332 07	.....
1899,	2	3,472 45	+17 91	—304 70

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase (+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as compared with 1896.
WIRE NAILS.				
1896,	3	\$1,652 95	.....	.....
1897,	3	2,247 27	+\$594 32	.....
1898,	3	1,476 90	-770 37	.....
1899,	3	2,424 86	+947 96	+\$771 91
TACKS AND SMALL NAILS.				
1896,	4	980 92	.....	.....
1897,	4	939 58	-41 34	.....
1898,	4	1,384 73	+445 15	.....
1899,	4	1,219 27	-165 46	+238 35
WIRE.				
1896,	6	2,154 68	.....	.....
1897,	6	2,004 09	-150 59	.....
1898,	6	2,202 75	+198 66	.....
1899,	6	2,104 07	-98 69	-50 61
WIRE ROPE.				
1896,	2	3,892 43	.....	.....
1897,	2	3,591 52	-300 91	.....
1898,	2	3,449 82	-141 70	.....
1899,	2	4,185 85	+736 03	+293 42
WIRE GOODS.				
1896,	4	838 00	.....	.....
1897,	4	1,128 53	+290 53	.....
1898,	4	1,379 14	+250 61	.....
1899,	4	1,409 98	+30 84	+571 98

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE--

Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
WAGON AND CARRIAGE AXLES.				
1896,	4	\$1,520 77	.....	.....
1897,	4	1,571 63	+\$50 86	.....
1898,	4	1,608 70	+37 07	.....
1899,	4	1,851 40	+242 70	+\$330 63
CARRIAGE AND WAGON SPRINGS.				
1896,	2	1,698 65	.....	.....
1897,	2	1,571 60	—127 05	.....
1898,	2	1,547 71	—23 89	.....
1899,	2	1,853 96	+306 25	+155 31
SCALES, ETC.				
1896,	5	2,022 43	.....	.....
1897,	5	2,008 31	—14 12	.....
1898,	5	1,923 46	—84 85	.....
1899,	5	2,148 60	+225 14	+126 17
STOVES, RANGES, HEATERS, ETC.				
1896,	39	1,190 57	.....	.....
1897,	39	1,623 83	+433 26	.....
1898,	39	1,163 10	—460 73	.....
1899,	39	1,364 75	+201 65	+174 18
BATH BOILERS, TANKS, ETC.				
1896,	2	2,353 31	.....	.....
1897,	2	2,274 97	—78 34	.....
1898,	2	1,940 69	—334 28	.....
1899,	2	1,993 13	+52 44	—360 18

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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HARDWARE SPECIALTIES.

1896,	14	\$949 63
1897,	14	1,016 45	+\$66 82
1898,	14	983 62	—32 83
1899,	14	1,161 16	+177 54	+\$211 53

EDGE TOOLS,

1896,	12	1,324 04	.....	.....
1897,	12	945 38	—378 66	.....
1898,	12	1,217 76	+272 38	.....
1899,	12	1,368 65	+150 89	+44 61

WRENCHES, PICKS, ETC.

1896,	5	1,463 93	.....	.....
1897,	5	1,576 94	+113 01	.....
1898,	5	1,816 39	+239 45	.....
1899,	5	2,010 26	+193 87	+546 33

LOCOMOTIVES AND CARS BUILT
AND REPAIRED

1896,	3	1,116 72	.....	.....
1897,	3	1,138 02	+21 30	.....
1898,	3	1,341 22	+203 20	.....
1899,	3	1,505 69	+164 47	+388 97

WROUGHT IRON PIPE AND
TUBES.

1896,	5	2,236 56	.....	.....
1897,	5	2,219 49	—17 07	.....
1898,	5	2,556 27	+336 78	.....
1899,	5	2,988 46	+432 19	+751 90

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
CAST IRON PIPE.				
1896,	3	\$1,701 48	.....	.....
1897,	3	1,925 79	+\$224 11	.....
1898,	3	1,828 79	—96 80	.....
1899,	3	1,825 41	—3 38	+\$123 93
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	1,831 60	.....	.....
1897,	20	1,672 80	—158 80	.....
1898,	20	1,864 91	+192 11	.....
1899,	20	2,370 08	+505 17	+538 48
IRON AND STEEL BRIDGES.				
1896,	8	2,933 39	.....	.....
1897,	8	2,646 87	—286 52	.....
1898,	8	2,612 24	—34 63	.....
1899,	8	3,032 80	+420 56	+99 41
LOCOMOTIVES, STATIONARY ENGINES, ETC.				
1896,	9	1,573 66	.....	.....
1897,	9	1,509 67	—63 99	.....
1898,	9	1,614 48	+104 81	.....
1899,	9	1,788 20	+173 72	+214 54
ENGINES, BOILERS, ETC.				
1896,	10	1,680 91	.....	.....
1897,	10	1,573 15	—107 76	.....
1898,	10	1,622 24	+49 09	.....
1899,	10	2,114 72	+492 48	+433 81

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	\$2,055 12	.....	.....
1897,	11	1,890 35	—\$164 77	.....
1898,	11	2,628 62	+738 27	.....
1899,	11	2,924 26	+295 64	+\$969 14
IRON VESSELS AND ENGINES.				
1896,	3	1,234 24	.....	.....
1897,	3	1,331 14	+96 90	.....
1898,	3	1,232 34	—98 80	.....
1899,	3	1,481 22	+248 88	+246 98
BOILERS, TANKS, STACKS, ETC.				
1896,	21	1,680 63	.....	.....
1897,	21	1,688 25	+7 62	.....
1898,	21	1,771 47	+83 22	.....
1899,	21	2,123 40	+351 93	+442 77
MACHINERY.				
1896,	21	1,450 69	.....	.....
1897,	21	1,414 95	—35 74	.....
1898,	21	1,466 16	+51 21	.....
1899,	21	1,550 68	+84 52	+99 99
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	1,242 69	.....	.....
1897,	25	1,411 48	+168 79	.....
1898,	25	1,459 58	+48 10	.....
1899,	25	1,675 67	+216 09	+432 98

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
FILES, ETC.				
1896,	2	\$970 46	.....	.....
1897,	2	952 40	—\$18 06	.....
1898,	2	1,085 27	+132 87	.....
1899,	2	1,159 81	+74 54	+\$189 35
SAWS.				
1896,	3	1,574 75	.....	.....
1897,	3	1,428 75	—146 00	.....
1898,	3	1,624 21	+195 46	.....
1899,	3	1,779 23	+155 02	+204 48
PLUMBER SUPPLIES.				
1896,	3	1,122 92	.....	.....
1897,	3	1,044 52	—78 40	.....
1898,	3	1,136 85	+92 33	.....
1899,	3	1,373 48	+236 63	+250 56
ELECTRICAL SUPPLIES.				
1896,	4	1,445 20	.....	.....
1897,	4	1,594 02	+148 82	.....
1898,	4	1,949 52	+355 50	.....
1899,	4	2,211 11	+261 59	+765 91
SHOVELS, SPADES, SCOOPS, ETC.				
1896,	8	1,492 80	.....	.....
1897,	8	1,571 52	+78 72	.....
1898,	8	1,888 85	+317 33	.....
1899,	8	2,653 55	+764 70	+1,160 75

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE

Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (--) as compared with the preced- ing year.	Increase (+) or decrease (-) 1899 and comparison with 1896
SAFES AND VAULT DOORS.				
1896,	2	\$1,183 95	.....	.....
1897,	2	1,259 81	+\$75 86	.....
1898,	2	1,265 17	+5 36	.....
1899,	2	1,306 44	+41 27	+\$122
ORNAMENTAL METAL WORK.				
1896,	2	1,577 79	.....	.....
1897,	2	1,540 46	—37 33	.....
1898,	2	1,163 69	—376 77	.....
1899,	2	1,358 87	+195 18	—218
METAL AND METALLIC GOODS.				
1896,	3	834 99	.....	.....
1897,	3	889 37	+54 38	.....
1898,	3	922 20	+32 83	.....
1899,	3	1,118 88	+196 68	+283
BUILDING AND STRUCTURAL IRON WORK.				
1896,	2	1,589 30	.....	.....
1897,	2	1,887 14	+397 84	.....
1898,	2	2,446 66	+559 52	.....
1899,	2	1,739 98	—706 68	+150
IRON CHAINS.				
1896,	5	1,433 15	.....	.....
1897,	5	1,456 06	+22 91	.....
1898,	5	1,521 58	+65 52	.....
1899,	5	1,953 54	+431 96	+520

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
IRON FENCES AND RAILINGS.				
1896,	7	\$1,512 67	.....	.....
1897,	7	1,456 41	—\$56 26	.....
1898,	7	1,484 60	+28 19	.....
1899,	7	1,680 63	+196 03	+\$167 96
AGRICULTURAL IMPLEMENTS.				
1896,	13	1,661 84	.....	.....
1897,	13	1,774 89	+113 05	.....
1898,	13	1,850 22	+75 33	.....
1899,	13	1,982 79	+132 57	+320 95
STEAM PUMPS.				
1896,	2	2,183 31	.....	.....
1897,	2	1,782 06	—401 25	.....
1898,	2	2,076 23	+294 17	.....
1899,	2	1,829 84	—246 39	—353 47
BICYCLES.				
1896,	4	2,730 15	.....	.....
1897,	4	2,354 11	—376 04	.....
1898,	4	1,993 97	—360 14	.....
1899,	4	1,722 39	—271 58	—1,007 76
PIANOS AND ORGANS.				
1896,	3	1,353 66	.....	.....
1897,	3	1,407 39	+53 73	.....
1898,	3	1,470 30	+62 91	.....
1899,	3	1,697 04	+226 74	+343 38

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896
TINWARE.				
1896,	5	\$1,679 57	.....	.....
1897,	5	1,698 18	+\$18 61	.....
1898,	5	1,687 77	—10 41	.....
1899,	5	1,983 55	+295 78	+\$303 9
PAPER MANUFACTORIES.				
1896,	8	2,216 30	.....	.....
1897,	8	2,245 85	+29 55	.....
1898,	8	2,235 71	—10 14	.....
1899,	8	2,530 74	+295 03	+314 4
WALL PAPER.				
1896,	5	2,167 66	.....	.....
1897,	5	2,471 06	+303 40	.....
1898,	5	2,757 75	+286 69	.....
1899,	5	2,945 44	+187 69	+777 7
CIGARS.				
1896,	48	1,112 05	.....	.....
1897,	48	1,130 27	+18 22	.....
1898,	48	1,160 24	+29 97	.....
1899,	48	1,184 49	+24 25	+72 4
BOOK BINDING.				
1896,	3	1,216 35	.....	.....
1897,	3	1,185 20	—31 25	.....
1898,	3	1,157 48	—27 72	.....
1899,	3	1,184 81	+27 33	—31 5

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CORDAGE ROPE AND TWINE.				
1896,	6	\$2,323 33	.....	.....
1897,	6	2,221 61	—\$101 72	.....
1898,	6	2,356 99	+135 38	.....
1899,	6	2,821 83	+464 84	+\$498 50
PAPER, PAPER BOXES, ENVELOPES, ETC.				
1896,	27	1,100 68	.....	.....
1897,	27	1,072 25	—28 43	.....
1898,	27	923 21	—149 04	.....
1899,	27	1,074 63	+151 42	—26 05
POTTERY.				
1896,	3	1,152 63	.....	.....
1897,	3	1,080 88	—71 75	.....
1898,	3	1,175 91	+95 03	.....
1899,	3	1,195 80	+19 89	+42 17
PAVING BRICK.				
1896,	9	746 36	.....	.....
1897,	9	800 43	+54 07	.....
1898,	9	720 59	—79 84	.....
1899,	9	713 52	—6 97	—32 84
BUILDING BRICK.				
1896,	36	800 12	.....	.....
1897,	36	824 15	+24 13	.....
1898,	36	777 12	—47 03	.....
1899,	36	875 44	+98 32	+75 32

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ES-
TABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or d- crease(—) 1899 as compare with 189
FIRE BRICK.				
1896,	18	\$877 90	.....	.....
1897,	18	814 35	—\$63 55	.....
1898,	18	823 12	+8 77	.....
1899,	18	843 70	+20 58	—\$34 2
SLATE ROOFING, ETC., TON- NAGE.				
1896,	7	460 79	.....	.....
1897,	7	607 78	+146 99	.....
1898,	7	676 88	+69 10	.....
1899,	7	671 24	—5 64	+210 4
SLATE ROOFING, ETC., SQUARES.				
1896,	16	482 69	.....	.....
1897,	16	542 58	+59 89	.....
1898,	16	412 36	—130 22	.....
1899,	16	590 32	+177 96	+107 6
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1896,	24	829 72	.....	.....
1897,	24	936 96	+107 24	.....
1898,	24	992 12	+55 16	.....
1899,	24	982 02	—10 10	+152 3

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
GLAZED AND CHROME KID.				
1896,	7	\$2,954 00	.....	.....
1897,	7	3,271 67	+\$317 67	.....
1898,	7	3,338 87	+67 20	.....
1899,	7	3,554 29	+215 42	+\$600 29
MEN'S WOMEN'S, MISSES AND CHILDREN'S SHOES.				
1896,	18	1,477 95	.....	.....
1897,	18	1,495 75	+17 80	.....
1898,	18	1,536 73	+40 98	.....
1899,	18	1,649 46	+112 73	+\$171 51
SUSPENDERS.				
1896,	2	2,900 91	.....	.....
1897,	2	2,909 17	+8 26	.....
1898,	2	3,082 68	+173 51	.....
1899,	2	2,983 02	—99 66	+82 11
HATS AND CAPS.				
1896,	3	1,285 10	.....	.....
1897,	3	1,599 30	+314 20	.....
1898,	3	1,316 34	—282 96	.....
1899,	3	1,248 02	—68 32	—37 08
FUR AND FELT HATS.				
1896,	5	1,503 45	.....	.....
1897,	5	1,487 22	—16 23	.....
1898,	5	1,377 16	—110 06	.....
1899,	5	1,431 11	+53 95	—72 34

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896
WOOL HATS.				
1896,	7	\$1,321 43	.....	.....
1897,	7	1,452 04	+\$130 61	.....
1898,	7	1,326 88	—125 16	.....
1899,	7	1,389 55	+62 67	+\$68 1
UMBRELLAS AND PARASOLS.				
1896,	6	1,980 11	.....	.....
1897,	6	2,154 18	+174 07	.....
1898,	6	2,309 76	+155 58	.....
1899,	6	2,319 08	+9 32	+338 9
DRESS TRIMMINGS, BRAIDS, ETC.				
1896,	8	1,103 71	.....	.....
1897,	8	1,056 49	—47 22	.....
1898,	8	1,107 11	+50 62	.....
1899,	8	1,184 88	+77 77	+81 1
SHIRTS AND SHIRT WAISTS.				
1896,	10	1,153 58	.....	.....
1897,	10	1,060 79	—92 79	.....
1898,	10	1,086 65	+25 86	.....
1899,	10	1,142 64	+55 99	—10 9
NECKWEAR.				
1896,	3	2,009 18	.....	.....
1897,	3	2,033 83	+24 65	.....
1898,	3	2,052 95	+19 12	.....
1899,	3	2,244 72	+191 77	+235 5

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Average annual product per employee.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease(—) 1899 as compared with 1896.
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COTTON AND WOOLEN CLOTHS.

1896,	26	\$1,221 84
1897,	26	1,350 15	+\$128 31
1898,	26	1,382 52	+32 37
1899,	26	1,583 92	+201 40	+\$362 08

CARPETS.

1896,	20	1,599 87	.....	.....
1897,	20	1,699 40	+99 53	.....
1898,	20	1,717 87	+18 47	.....
1899,	20	2,044 97	+327 10	+445 10

COTTON GOODS.

1896,	19	977 12	.....	.....
1897,	19	1,049 31	+72 19	.....
1898,	19	1,051 67	+2 36	.....
1899,	19	1,077 79	+26 12	+100 67

WOOLEN AND WORSTED CASSIMERES.

1896,	11	1,435 00	.....	.....
1897,	11	1,665 95	+230 95	.....
1898,	11	1,646 55	—19 40	.....
1899,	11	1,840 41	+193 86	+405 41

WOOLEN AND WORSTED FABRICS.

1896,	17	1,392 21	.....	.....
1897,	17	1,592 49	+200 28	.....
1898,	17	1,687 10	+94 61	.....
1899,	17	1,775 86	+88 76	+383 65

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average annual product per employee.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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WOOLEN AND WORSTED YARNS.

1896,	13	\$1,725 31
1897,	13	2,081 35	+\$356 04
1898,	13	2,597 27	+515 92
1899,	13	3,294 13	+696 86	+\$1,568 82

RUGS, YARNS, ETC.

1896,	6	1,283 85	.....	.....
1897,	6	1,307 94	+24 09	.....
1898,	6	1,335 85	+27 91	.....
1899,	6	1,451 59	+115 74	+167 47

CARPET YARNS.

1896,	12	2,177 24	.....	.....
1897,	12	2,783 64	+606 40	.....
1898,	12	2,368 89	—414 75	.....
1899,	12	2,783 75	+414 86	+606 51

COTTON YARNS.

1896,	8	1,619 70	.....	.....
1897,	8	1,561 04	—58 66	.....
1898,	8	1,550 75	—10 29	.....
1899,	8	1,642 28	+91 53	+22 58

WORSTED YARNS.

1896,	9	1,609 94	.....	.....
1897,	9	1,890 57	+280 63	.....
1898,	9	1,666 22	—224 35	.....
1899,	9	2,444 87	+778 65	+834 93

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE—
Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average annual product per employe.	Increase(+) or decrease (-) as compared with the preceding year.	Increase (+) or decrease (-) 1899 as compared with 1896.
COTTON AND WOOLEN YARNS.				
1896,	5	\$1,306 84	.....	.....
1897,	5	1,422 82	+\$115 98	.....
1898,	5	1,382 99	—39 83	.....
1899,	5	1,361 84	—21 15	+\$55 00
WOOLEN BLANKETS, FLANNELS, ETC.				
1896,	5	1,788 58	.....	.....
1897,	5	1,698 89	—89 69	.....
1898,	5	1,982 50	+283 61	.....
1899,	5	1,689 24	—293 26	—99 34
LACE GOODS.				
1896,	3	1,191 73	.....	.....
1897,	3	1,271 28	+79 55	.....
1898,	3	1,252 26	—19 02	.....
1899,	3	1,191 15	—61 11	—58
CHENILLE GOODS.				
1896,	3	824 06	.....	.....
1897,	3	858 46	+34 40	.....
1898,	3	987 11	+128 65	.....
1899,	3	1,105 86	+118 75	+281 80
UPHOLSTERY GOODS.				
1896,	10	1,379 96	.....	.....
1897,	10	1,390 97	+11 01	.....
1898,	10	1,457 76	+66 79	.....
1899,	10	1,542 82	+85 06	+162 86

VALUE OF AVERAGE ANNUAL PRODUCT PER EMPLOYEE— Continued.

COMPARISON OF VALUE OF PRODUCTION PER EMPLOYEE—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average annual product per employe.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	\$1,285 32	.....	.....
1897,	15	1,325 52	+\$40 20	.....
1898,	15	1,372 94	+47 42	.....
1899,	15	1,350 71	—22 23	+\$65 39
HOSIERY.				
1896,	33	778 66	.....	.....
1897,	33	800 55	+21 89	.....
1898,	33	820 40	+19 85	.....
1899,	33	850 03	+29 63	+71 37
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	1,460 83	.....	.....
1897,	7	1,364 42	—96 41	.....
1898,	7	1,439 52	+75 10	.....
1899,	7	1,896 14	+456 62	+435 31
SILK—BROAD GOODS AND RIBBONS.				
1896,	3	1,097 52	.....	.....
1897,	3	1,138 47	+40 95	.....
1898,	3	1,288 84	+150 37	.....
1899,	3	1,527 40	+238 56	+429 88
SILK—RIBBONS.				
1896,	4	1,636 01	.....	.....
1897,	4	1,674 56	+38 55	.....
1898,	4	1,684 26	+9 70	.....
1899,	4	1,612 27	—71 99	—23 74

AVERAGE YEARLY EARNINGS.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES, SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the average yearly earnings by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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STEEL CASTINGS.

1896,	7	\$455 72
1897,	7	447 85	—\$7 87
1898,	7	454 28	+6 43
1899,	7	491 89	+37 61	+\$36 17

STEEL BILLETS, SLABS,
BLOOMS, ETC.

1896,	4	446 83	.....	.....
1897,	4	493 33	+46 50	.....
1898,	4	591 97	+98 64	.....
1899,	4	688 03	+96 06	+241 20

TOOL STEEL.

1896,	2	566 31	.....	.....
1897,	2	484 32	—81 99	.....
1898,	2	739 96	+255 64	.....
1899,	2	695 28	—44 68	+128 97

IRON AND STEEL SPECIALTIES.

1896,	3	367 64	.....	.....
1897,	3	342 08	—25 56	.....
1898,	3	288 17	—53 91	.....
1899,	3	354 17	+66 00	—13 47

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYEES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	\$478 61	.....	.....
1897,	7	495 18	+\$16 57	.....
1898,	7	552 82	+57 64	.....
1899,	7	630 65	+77 83	+\$152 04
IRON SPECIALTIES.				
1896,	2	478 38	.....	.....
1897,	2	504 44	+26 06	.....
1898,	2	534 29	+29 85	.....
1899,	2	591 94	+57 65	+113 56
MALLEABLE IRON.				
1896,	4	450 75	.....	.....
1897,	4	460 86	+10 11	.....
1898,	4	473 67	+12 81	.....
1899,	4	507 05	+33 38	+56 30
BOLTS, NUTS, ETC.				
1896,	8	384 27	.....	.....
1897,	8	318 97	—65 30	.....
1898,	8	345 19	+26 22	.....
1899,	8	376 97	+31 78	—7 30
SPIKES AND RIVETS.				
1896,	2	432 24	.....	.....
1897,	2	357 24	—75 00	.....
1898,	2	358 62	+1 38	.....
1899,	2	336 25	—22 37	—95 99

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYEES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WIRE NAILS.				
1896,	3	\$305 23	.....	.....
1897,	3	384 62	+\$79 39	.....
1898,	3	272 32	—112 30	.....
1899,	3	337 25	+64 93	+\$32 02
TACKS AND SMALL NAILS.				
1896,	4	289 18	.....	.....
1897,	4	278 53	—10 65	.....
1898,	4	360 04	+81 51	.....
1899,	4	344 68	—15 36	+55 50
WIRE.				
1896,	6	457 03	.....	.....
1897,	6	404 55	—52 48	.....
1898,	6	478 83	+74 28	.....
1899,	6	493 76	+14 93	+36 73
WIRE ROPE.				
1896,	2	443 72	.....	.....
1897,	2	450 67	+6 95	.....
1898,	2	467 67	+17 00	.....
1899,	2	488 00	+20 33	+44 28
WIRE GOODS.				
1896,	4	258 85	.....	.....
1897,	4	310 84	+51 99	.....
1898,	4	260 96	—49 88	.....
1899,	4	282 51	+21 55	+23 66

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WAGON AND CARRIAGE AXLES.				
1896,	4	\$471 41	.....	.....
1897,	4	505 84	+\$34 43	.....
1898,	4	523 31	+17 47	.....
1899,	4	523 08	—23	+\$51 67
CARRIAGE AND WAGON SPRINGS.				
1896,	2	578 07	.....	.....
1897,	2	519 98	—58 09	.....
1898,	2	514 09	—5 89	.....
1899,	2	509 72	—4 37	—68 35
SCALES, ETC.				
1896,	5	579 58	.....	.....
1897,	5	567 82	—11 76	.....
1898,	5	568 47	+65	.....
1899,	5	603 33	+34 86	+23 75
STOVES, RANGES, HEATERS, ETC.				
1896,	39	470 95	.....	.....
1897,	39	464 10	—6 85	.....
1898,	39	483 14	+19 04	.....
1899,	39	535 11	+51 97	+64 16
BATH BOILERS, TANKS, ETC.				
1896,	2	465 04	.....	.....
1897,	2	446 36	—18 68	.....
1898,	2	425 34	—21 02	.....
1899,	2	432 18	+6 84	—32 86

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
HARDWARE SPECIALTIES.				
1896,	14	\$400 42	.....	.....
1897,	14	398 69	—\$1 73	.....
1898,	14	392 28	—6 41	.....
1899,	14	432 09	+39 81	+\$31 67
EDGE TOOLS,				
1896,	12	435 70	.....	.....
1897,	12	368 79	—66 91	.....
1898,	12	457 51	+88 72	.....
1899,	12	466 17	+8 66	+30 47
WRENCHES, PICKS, ETC.				
1896,	5	428 91	.....	.....
1897,	5	419 91	—9 00	.....
1898,	5	511 49	+91 58	.....
1899,	5	526 12	+14 63	+97 21
LOCOMOTIVES AND CARS BUILT AND REPAIRED				
1896,	3	485 43	.....	.....
1897,	3	524 84	+39 41	.....
1898,	3	571 93	+47 09	.....
1899,	3	608 46	+36 53	+123 03
WROUGHT IRON PIPE AND TUBES.				
1896,	5	407 72	.....	.....
1897,	5	400 32	—7 40	.....
1898,	5	430 62	+30 30	.....
1899,	5	521 62	+91 00	+113 90

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CAST IRON PIPE.				
1896,	3	\$412 89	.....	.....
1897,	3	408 02	—\$4 87	.....
1898,	3	382 51	—25 51	.....
1899,	3	351 83	—30 68	—\$61 06
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	428 68	.....	.....
1897,	20	423 19	—5 49	.....
1898,	20	449 53	+26 34	.....
1899,	20	466 11	+16 58	+37 43
IRON AND STEEL BRIDGES.				
1896,	8	504 77	.....	.....
1897,	8	419 88	—24 89	.....
1898,	8	455 14	—24 74	.....
1899,	8	430 21	—24 93	—74 56
LOCOMOTIVES,* STATIONARY ENGINES, ETC.				
1896,	9	561 53	.....	.....
1897,	9	536 69	—24 84	.....
1898,	9	572 26	+35 57	.....
1899,	9	586 63	+14 37	+25 10
ENGINES, BOILERS, ETC.				
1896,	10	522 13	.....	.....
1897,	10	497 57	—24 56	.....
1898,	10	523 57	+26 00	.....
1899,	10	548 08	+24 51	+25 95

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	\$433 75	.....	.....
1897,	11	402 51	—\$31 24	.....
1898,	11	476 52	+74 01	.....
1899,	11	529 63	+53 11	+\$95 88
IRON VESSELS AND ENGINES.				
1896,	3	573 87	.....	.....
1897,	3	545 98	—27 89	.....
1898,	3	535 08	—10 90	.....
1899,	3	554 00	+18 92	—19 87
BOILERS, TANKS, STACKS, ETC.				
1896,	21	467 08	.....	.....
1897,	21	474 32	+7 24	.....
1898,	21	461 68	—12 64	.....
1899,	21	479 58	+17 90	+12 50
MACHINERY.				
1896,	21	525 65	.....	.....
1897,	21	511 44	—14 21	.....
1898,	21	541 79	+30 35	.....
1899,	21	554 70	+12 91	+29 05
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	450 22	.....	.....
1897,	25	473 93	+23 71	.....
1898,	25	483 99	+10 06	.....
1899,	25	505 84	+21 85	+55 62

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES, SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease(—) 1899 as compared with 1896.
FILES, ETC.				
1896,	2	\$328 99	.....	.....
1897,	2	320 24	—\$8 75	.....
1898,	2	318 57	—1 67	.....
1899,	2	345 36	+26 79	+\$16 37
SAWS.				
1896,	3	459 73	.....	.....
1897,	3	431 14	—28 59	.....
1898,	3	488 06	+56 92	.....
1899,	3	512 77	+24 71	+53 04
PLUMBER SUPPLIES.				
1896,	3	436 32	.....	.....
1897,	3	409 55	—26 77	.....
1898,	3	448 67	+39 12	.....
1899,	3	480 71	+32 04	+44 39
ELECTRICAL SUPPLIES.				
1896,	4	504 78	.....	.....
1897,	4	545 17	+40 39	.....
1898,	4	551 56	+6 39	.....
1899,	4	551 08	—48	+46 30
SHOVELS, SPADES, SCOOPS, ETC.				
1896,	8	399 23	.....	.....
1897,	8	395 43	—3 80	.....
1898,	8	448 09	+52 66	.....
1899,	8	518 60	+70 51	+119 37

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYEES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
SAFES AND VAULT DOORS.				
1896,	2	\$426 22	.....	.....
1897,	2	479 25	+\$53 03	.....
1898,	2	504 23	+24 98	.....
1899,	2	499 71	—4 52	+\$73 49
ORNAMENTAL METAL WORK.				
1896,	2	630 93	.....	.....
1897,	2	582 23	—48 70	.....
1898,	2	508 63	—73 60	.....
1899,	2	512 58	+3 95	—118 35
METAL AND METALLIC GOODS.				
1896,	3	303 56	.....	.....
1897,	3	317 41	+13 85	.....
1898,	3	329 26	+11 85	.....
1899,	3	397 20	+67 94	+93 64
BUILDING AND STRUCTURAL IRON WORK.				
1896,	2	508 18	.....	.....
1897,	2	520 31	+12 13	.....
1898,	2	525 02	+4 71	.....
1899,	2	530 60	+5 58	+22 42
IRON CHAINS.				
1896,	5	396 22	.....	.....
1897,	5	418 49	+22 27	.....
1898,	5	447 18	+28 69	.....
1899,	5	469 58	+22 40	+73 36

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON FENCES AND RAILINGS.				
1896,	7	\$474 84	.....	.....
1897,	7	489 23	+\$14 39	.....
1898,	7	453 94	—35 29	.....
1899,	7	450 74	—3 20	—\$24 10
AGRICULTURAL IMPLEMENTS.				
1896,	13	439 85	.....	.....
1897,	13	439 31	—54	.....
1898,	13	470 46	+31 15	.....
1899,	13	487 35	+16 89	+47 50
STEAM PUMPS.				
1896,	2	793 26	.....	.....
1897,	2	736 46	—56 80	.....
1898,	2	741 93	+5 47	.....
1899,	2	741 08	—85	—52 18
BICYCLES.				
1896,	4	523 21	.....	.....
1897,	4	573 43	+50 22	.....
1898,	4	453 00	—120 43	.....
1899,	4	441 49	—11 51	—81 72
PIANOS AND ORGANS.				
1896,	3	519 67	.....	.....
1897,	3	492 45	—27 22	.....
1898,	3	505 84	+13 39	.....
1899,	3	521 05	+15 21	+1 38

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYEES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
TINWARE.				
1896,	5	\$378 66	.....	.....
1897,	5	388 75	+\$10 09	.....
1898,	5	370 93	—17 82	.....
1899,	5	430 58	+59 65	+\$51 92
PAPER MANUFACTORIES.				
1896,	8	381 90	.....	.....
1897,	8	399 01	+17 11	.....
1898,	8	399 06	+05	.....
1899,	8	409 43	+10 37	+27 53
WALL PAPER.				
1896,	5	323 79	.....	.....
1897,	5	337 41	+13 62	.....
1898,	5	357 11	+19 70	.....
1899,	5	367 12	+10 01	+43 33
CIGARS.				
1896,	48	283 18	.....	.....
1897,	48	284 50	+1 32	.....
1898,	48	292 58	+8 08	.....
1899,	48	297 17	+4 59	+13 99
BOOK BINDING.				
1896,	3	470 70	.....	.....
1897,	3	484 51	+13 81	.....
1898,	3	482 65	—1 86	.....
1899,	3	490 44	+7 79	+19 74

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CORDAGE ROPE AND TWINE.				
1896,	6	\$302 10	.....	.....
1897,	6	322 70	+\$20 60	.....
1898,	6	322 88	+18	.....
1899,	6	361 16	+38 28	+\$59 06
PAPER, PAPER BOXES, ENVELOPES, ETC.				
1896,	27	270 89	.....	.....
1897,	27	267 51	—3 38	.....
1898,	27	229 67	—37 84	.....
1899,	27	294 62	+64 95	+23 73
POTTERY.				
1896,	3	455 03	.....	.....
1897,	3	430 09	—24 94	.....
1898,	3	433 82	+3 73	.....
1899,	3	443 43	—39	—21 60
PAVING BRICK.				
1896,	9	319 83	.....	.....
1897,	9	331 96	+12 13	.....
1898,	9	305 12	—26 84	.....
1899,	9	311 97	+6 85	—7 86
BUILDING BRICK.				
1896,	36	338 93	.....	.....
1897,	36	351 68	+12 75	.....
1898,	36	341 08	—10 60	.....
1899,	36	362 52	+21 44	+23 59

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase (+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease (—) 1899 as compared with 1896.
FIRE BRICK.				
1896,	18	\$389 26	.....	.....
1897,	18	373 08	—\$16 18	.....
1898,	18	362 41	—10 67	.....
1899,	18	384 59	+22 18	—\$4 67
SLATE ROOFING, ETC., TON- NAGE.				
1896,	7	304 82	.....	.....
1897,	7	325 82	+21 00	.....
1898,	7	324 54	—1 28	.....
1899,	7	325 68	+1 14	+20 86
SLATE ROOFING, ETC., SQUARES.				
1896,	16	315 33	.....	.....
1897,	16	326 20	+10 87	.....
1898,	16	259 20	—67 00	.....
1899,	16	349 66	+90 46	+34 33
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1896,	24	373 71	.....	.....
1897,	24	411 19	+37 48	.....
1898,	24	432 33	+21 14	.....
1899,	24	427 77	—4 56	+54 06

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
GLAZED AND CHROME KID.				
1896,	7	\$353 15	.....	.....
1897,	7	394 82	+\$41 67	.....
1898,	7	393 26	—1 56	.....
1899,	7	414 94	+21 68	+\$61 79
MEN'S WOMEN'S, MISSES AND CHILDREN'S SHOES.				
1896,	18	338 67	.....	.....
1897,	18	352 32	+13 65	.....
1898,	18	355 62	+3 30	.....
1899,	18	375 83	+20 21	+37 16
SUSPENDERS.				
1896,	2	281 24	.....	.....
1897,	2	282 80	+1 56	.....
1898,	2	322 83	+40 03	.....
1899,	2	377 47	+54 64	+96 23
HATS AND CAPS.				
1896,	3	296 23	.....	.....
1897,	3	366 74	+70 51	.....
1898,	3	314 97	—51 77	.....
1899,	3	342 69	+27 72	+46 36
FUR AND FELT HATS.				
1896,	5	399 97	.....	.....
1897,	5	491 08	+91 11	.....
1898,	5	473 42	—17 66	.....
1899,	5	471 17	—2 25	+71 20

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WOOL HATS.				
1896,	7	\$318 46	.....	.....
1897,	7	320 08	+\$1 62	.....
1898,	7	293 28	—26 80	.....
1899,	7	303 84	+10 56	—\$14 62
UMBRELLAS AND PARASOLS.				
1896,	6	243 29	.....	.....
1897,	6	299 63	+56 34	.....
1898,	6	271 45	—28 18	.....
1899,	6	271 54	+09	+28 25
DRESS TRIMMINGS, BRAIDS, ETC.				
1896,	8	270 87	.....	.....
1897,	8	272 97	+2 10	.....
1898,	8	267 84	—5 13	.....
1899,	8	272 55	+4 71	+1 68
SHIRTS AND SHIRT WAISTS.				
1896,	10	290 43	.....	.....
1897,	10	271 36	—19 07	.....
1898,	10	270 08	—1 28	.....
1899,	10	297 78	+27 70	+7 35
NECKWEAR.				
1896,	3	383 74	.....	.....
1897,	3	362 00	—21 74	.....
1898,	3	376 91	+14 91	.....
1899,	3	378 89	+1 98	—4 85

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
COTTON AND WOOLEN CLOTHS.				
1896,	26	\$317 14	.....	.....
1897,	26	345 28	+\$28 14	.....
1898,	26	350 05	+4 77	.....
1899,	26	370 97	+20 92	+\$53 83
CARPETS.				
1896,	20	349 23	.....	.....
1897,	20	369 53	+20 30	.....
1898,	20	360 54	—8 99	.....
1899,	20	409 38	+48 84	+60 15
COTTON GOODS.				
1896,	19	283 30	.....	.....
1897,	19	313 48	+30 18	.....
1898,	19	323 05	+9 57	.....
1899,	19	334 10	+11 05	+50 80
WOOLEN AND WORSTED CASSI- MERES.				
1896,	11	305 88	.....	.....
1897,	11	332 92	+27 04	.....
1898,	11	332 52	—40	.....
1899,	11	349 24	+16 72	+43 36
WOOLEN AND WORSTED FAB- RICS.				
1896,	17	282 90	.....	.....
1897,	17	315 36	+32 46	.....
1898,	17	336 29	+20 93	.....
1899,	17	355 90	+19 61	+73 00

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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WOOLEN AND WORSTED YARNS.

1896,	13	\$279 18
1897,	13	310 41	+\$31 23
1898,	13	301 38	—9 03
1899,	13	335 88	+34 50	+\$56 70

RUGS, YARNS, ETC.

1896,	6	318 98	.....	.....
1897,	6	318 36	—62	.....
1898,	6	336 83	+18 47	.....
1899,	6	377 40	+40 57	+58 42

CARPET YARNS.

1896,	12	338 74	.....	.....
1897,	12	373 05	+34 31	.....
1898,	12	331 56	—41 49	.....
1899,	12	382 58	+51 02	+43 84

COTTON YARNS.

1896,	8	270 24	.....	.....
1897,	8	281 87	+11 63	.....
1898,	8	301 18	+19 31	.....
1899,	8	305 45	+4 27	+35 21

WORSTED YARNS.

1896,	9	267 24	.....	.....
1897,	9	268 49	+1 25	.....
1898,	9	260 25	—8 24	.....
1899,	9	311 21	+50 96	+43 97

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average yearly earnings.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
COTTON AND WOOLEN YARNS.				
1896,	5	\$296 73	.....	.....
1897,	5	314 13	+\$17 40	.....
1898,	5	317 82	+3 69	.....
1899,	5	334 92	+17 10	+\$38 19
WOOLEN BLANKETS, FLAN- NELS, ETC.				
1896,	5	358 52	.....	.....
1897,	5	367 74	+9 22	.....
1898,	5	329 54	—38 20	.....
1899,	5	333 27	+3 73	—25 25
LACE GOODS.				
1896,	3	253 95	.....	.....
1897,	3	261 33	+7 38	.....
1898,	3	277 11	+15 78	.....
1899,	3	285 65	+8 54	+31 70
CHENILLE GOODS.				
1896,	3	226 95	.....	.....
1897,	3	253 33	+26 38	.....
1898,	3	285 54	+32 21	.....
1899,	3	338 77	+53 23	+111 82
UPHOLSTERY GOODS.				
1896,	10	348 00	.....	.....
1897,	10	371 79	+23 79	.....
1898,	10	398 38	+26 59	.....
1899,	10	404 63	+6 25	+56 63

AVERAGE YEARLY EARNINGS—Continued.

COMPARISON OF AVERAGE YEARLY EARNINGS OF EMPLOYES,
SKILLED AND UNSKILLED—SAME ESTABLISHMENTS, FOR THE
YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Average yearly earnings.	Increase(+) or decrease (—) as compared with the prece- ding year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	\$263 96	.....	.....
1897,	15	264 35	+\$0 39	.....
1898, ..	15	270 19	+5 84	.....
1899,	15	280 59	+10 40	+\$16 63
HOSIERY.				
1896,	33	237 11	.....	.....
1897,	33	245 57	+8 46	.....
1898,	33	250 48	+4 91	.....
1899,	33	262 56	+12 08	+25 45
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	252 20	.....	.....
1897,	7	230 67	—21 53	.....
1898,	7	240 60	+9 93	.....
1899,	7	268 11	+27 51	+15 91
SILK—BROAD GOODS AND RIB- BONS.				
1896,	3	247 28	.....	.....
1897,	3	232 26	—15 02	.....
1898,	3	233 57	+1 31	.....
1899,	3	259 31	+25 74	+12 03
SILK—RIBBONS.				
1896,	4	291 88	.....	.....
1897,	4	350 45	+58 57	.....
1898,	4	336 36	—14 09	.....
1899,	4	338 22	+1 86	+46 34

AVERAGE DAILY WAGE.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

NOTE.—In this table the average daily wage of employes, skilled and unskilled, in the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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STEEL CASTINGS.

1896,	7	\$1 57
1897,	7	1 44	—13
1898,	7	1 46	+02
1899,	7	1 63	+17	+06

STEEL BILLETS, SLABS,
BLOOMS, ETC.

1896,	4	2 19	.....	.....
1897,	4	1 70	—49	.....
1898,	4	2 07	+37	.....
1899,	4	2 33	+26	+14

TOOL STEEL.

1896,	2	2 12	.....	.....
1897,	2	1 94	—18	.....
1898,	2	2 31	+37	.....
1899,	2	2 32	+01	+20

IRON AND STEEL SPECIALTIES.

1896,	3	1 24	.....	.....
1897,	3	1 20	—04	.....
1898,	3	1 00	—20	.....
1899,	3	1 23	+23	—01

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	\$1 87	.....	.....
1897,	7	1 76	—11	.....
1898,	7	1 89	+13	.....
1899,	7	2 10	+21	+23
IRON SPECIALTIES.				
1896,	2	1 59	.....	.....
1897,	2	1 68	+09	.....
1898,	2	1 77	+09	.....
1899,	2	1 97	+20	+38
MALLEABLE IRON.				
1896,	4	1 54	.....	.....
1897,	4	1 58	+04	.....
1898,	4	1 59	+01	.....
1899,	4	1 70	+11	+16
BOLTS, NUTS, ETC.				
1896,	8	1 64	.....	.....
1897,	8	1 22	—42	.....
1898,	8	1 26	+04	.....
1899,	8	1 33	+07	—31
SPIKES AND RIVETS.				
1896,	2	1 54	.....	.....
1897,	2	1 26	—28	.....
1898,	2	1 23	—03	.....
1899,	2	1 24	+01	—30

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments con- sidered.	Average daily wage.	Increase(+) or decrease (-) as com- pared with the preced- ing year	Increase (+) or de- crease(-) 1899 as compared with 1896.
WIRE NAILS.				
1896,	3	\$1 29	.....	.....
1897,	3	1 56	+27	.....
1898,	3	1 51	-05	.....
1899,	3	2 53	+1 02	+1 24
TACKS AND SMALL NAILS.				
1896,	4	1 28	.....	.....
1897,	4	1 33	+05	.....
1898,	4	1 45	+12	.....
1899,	4	1 23	-22	-05
WIRE.				
1896,	6	1 58	.....	.....
1897,	6	1 49	-09	.....
1898,	6	1 54	+05	.....
1899,	6	1 55	+01	-03
WIRE ROPE.				
1896,	2	1 47	.....	.....
1897,	2	1 49	+02	.....
1898,	2	1 54	+05	.....
1899,	2	1 61	+07	+14
WIRE GOODS.				
1896,	4	89	.....	.....
1897,	4	1 04	+15	.....
1898,	4	86	-18	.....
1899,	4	93	+07	+04

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WAGON AND CARRIAGE AXLES.				
1896,	4	\$1 87	.....	.....
1897,	4	1 82	—05	.....
1898,	4	1 79	—03	.....
1899,	4	1 82	+03	—05
CARRIAGE AND WAGON SPRINGS.				
1896,	2	2 22	.....	.....
1897,	2	2 00	—22	.....
1898,	2	1 91	—09	.....
1899,	2	1 92	+01	—30
SCALES, ETC.				
1896,	5	2 08	.....	.....
1897,	5	1 98	—10	.....
1898,	5	1 90	—08	.....
1899,	5	2 00	+10	—08
STOVES, RANGES, HEATERS, ETC.				
1896,	39	2 25	.....	.....
1897,	39	2 04	—21	.....
1898,	39	2 04	.....	.....
1899,	39	2 11	+07	—14
BATH BOILERS, TANKS, ETC.				
1896,	2	1 50	.....	.....
1897,	2	1 46	—04	.....
1898,	2	1 41	—05	.....
1899,	2	1 42	+01	—08

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
HARDWARE SPECIALTIES.				
1896,	14	\$1 54	.....	.....
1897,	14	1 48	—06	.....
1898,	14	1 53	+05	.....
1899,	14	1 54	+01	.....
EDGE TOOLS.				
1896,	12	1 77	.....	.....
1897,	12	1 62	—15	.....
1898,	12	1 57	—05	.....
1899,	12	1 59	+02	—18
WRENCHES, PICKS, ETC.				
1896,	5	1 79	.....	.....
1897,	5	1 58	—21	.....
1898,	5	1 88	+30	.....
1899,	5	1 80	—08	+01
LOCOMOTIVES AND CARS BUILT AND REPAIRED.				
1896,	3	1 78	.....	.....
1897,	3	1 86	+08	.....
1898,	3	1 93	+07	.....
1899,	3	2 00	+07	+22
WROUGHT IRON PIPE AND TUBES.				
1896,	5	1 44	.....	.....
1897,	5	1 34	—10	.....
1898,	5	1 42	+08	.....
1899,	5	1 94	+52	+50

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments considered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease(—) 1899 as compared with 1896.
CAST IRON PIPE.				
1896,	3	\$1 37	.....	.....
1897,	3	1 35	—02	.....
1898,	3	1 29	—06	.....
1899,	3	1 40	+11	+03
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	1 45	.....	.....
1897,	20	1 44	—01	.....
1898,	20	1 51	+07	.....
1899,	20	1 54	+03	+09
IRON AND STEEL BRIDGES.				
1896,	8	1 72	.....	.....
1897,	8	1 61	—11	.....
1898,	8	1 51	—10	.....
1899,	8	1 54	+03	—18
LOCOMOTIVES, STATIONARY ENGINES, ETC.				
1896,	9	1 84	.....	.....
1897,	9	1 75	—09	.....
1898,	9	1 88	+13	.....
1899,	9	1 91	+03	+07
ENGINES, BOILERS, ETC.				
1896,	10	1 77	.....	.....
1897,	10	1 69	—08	.....
1898,	10	1 72	+03	.....
1899,	10	1 82	+10	+05

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	\$1 67	.....	.....
1897,	11	1 44	—23	.....
1898,	11	1 61	+17	.....
1899,	11	1 71	+10	+04
IRON VESSELS AND ENGINES.				
1896,	3	1 88	.....	.....
1897,	3	1 79	—09	.....
1898,	3	1 76	—03	.....
1899,	3	1 87	+11	—01
BOILERS, TANKS, STACKS, ETC.				
1896,	21	1 63	.....	.....
1897,	21	1 66	+03	.....
1898,	21	1 59	—07	.....
1899,	21	1 58	—01	—05
MACHINERY.				
1896,	21	1 75	.....	.....
1897,	21	1 66	—09	.....
1898,	21	1 81	+15	.....
1899,	21	1 84	+03	+09
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	1 57	.....	.....
1897,	25	1 61	+04	.....
1898,	25	1 63	+02	.....
1899,	25	1 66	+03	+09

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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FILES, ETC.

1896,	2	\$1 20
1897,	2	1 20
1898,	2	1 15	—05
1899,	2	1 14	—01	—06

SAWS.

1896,	3	2 01
1897,	3	2 05	+04
1898,	3	2 00	—05	.....
1899,	3	2 05	+05	+04

PLUMBER SUPPLIES.

1896,	3	1 55	.....	.....
1897,	3	1 52	—03	.....
1898,	3	1 55	+03	.....
1899,	3	1 54	—01	—01

ELECTRICAL SUPPLIES.

1896,	4	1 75	.....	.....
1897,	4	1 84	+09	.....
1898,	4	1 83	—01	.....
1899,	4	1 82	—01	+07

SHOVELS, SPADES, SCOOPS, ETC.

1896,	8	1 90	.....	.....
1897,	8	1 81	—09	.....
1898,	8	1 82	+01	.....
1899,	8	1 85	+03	—05

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
SAFES AND VAULT DOORS.				
1896,	2	\$1 39	.....	.....
1897,	2	1 59	+20	.....
1898,	2	1 69	+10	.....
1899,	2	1 70	+01	+31
ORNAMENTAL METAL WORK.				
1896,	2	2 09	.....	.....
1897,	2	1 97	-12	.....
1898,	2	1 71	-26	.....
1899,	2	1 71	.....	-38
METAL AND METALLIC GOODS.				
1896,	3	1 29	.....	.....
1897,	3	1 23	-06	.....
1898,	3	1 29	+06	.....
1899,	3	1 50	+21	+21
BUILDING AND STRUCTURAL IRON WORK.				
1896,	2	1 60	.....	.....
1897,	2	1 72	+12	.....
1898,	2	1 71	-01	.....
1899,	2	1 74	+03	+14
IRON CHAINS.				
1896,	5	1 50	.....	.....
1897,	5	1 54	+04	.....
1898,	5	1 50	-04	.....
1899,	5	1 59	+09	+09

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consider- ed.	Average daily wage.	Increase(+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON FENCES AND RAILINGS.				
1896,	7	\$1 62	.....	.....
1897,	7	1 64	+02	.....
1898,	7	1 49	—15	.....
1899,	7	1 49	.....	—13
AGRICULTURAL IMPLEMENTS.				
1896,	13	1 54	.....	.....
1897,	13	1 50	—04	.....
1898,	13	1 57	+07	.....
1899,	13	1 64	+07	+10
STEAM PUMPS.				
1896,	2	2 58	.....	.....
1897,	2	2 40	—18	.....
1898,	2	2 44	+04	.....
1899,	2	2 46	+02	—12
BICYCLES.				
1896,	4	1 91	.....	.....
1897,	4	2 05	+14	.....
1898,	4	1 63	—42	.....
1899,	4	1 61	—02	—30
PIANOS AND ORGANS.				
1896,	3	1 76	.....	.....
1897,	3	1 61	—15	.....
1898,	3	1 70	+09	.....
1899,	3	1 73	+03	—03

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
TINWARE.				
1896,	5	\$1 26	.....	.....
1897,	5	1 29	+03	.....
1898,	5	1 24	—05	.....
1899,	5	1 43	+19	+17
PAPER MANUFACTORIES.				
1896,	8	1 46	.....	.....
1897,	8	1 44	—02	.....
1898,	8	1 41	—03	.....
1899,	8	1 44	+03	—02
WALL PAPER.				
1896,	5	1 36	.....	.....
1897,	5	1 27	—09	.....
1898,	5	1 30	+03	.....
1899,	5	1 33	+03	—03
CIGARS.				
1896,	48	99	.....	.....
1897,	48	98	—01	.....
1898,	48	1 00	+02	.....
1899,	48	1 01	+01	+02
BOOK BINDING.				
1896,	3	1 56	.....	.....
1897,	3	1 73	+17	.....
1898,	3	1 70	—03	.....
1899,	3	1 75	+05	+19

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
CORDAGE ROPE AND TWINE.				
1896,	6	\$1 04	.....	.....
1897,	6	1 02	—02	.....
1898,	6	1 03	+01	.....
1899,	6	1 16	+13	+12
PAPER, PAPER BOXES, ENVEL- OPES, ETC.				
1896,	27	91	.....	.....
1897,	27	89	—02	.....
1898,	27	76	—13	.....
1899,	27	97	+21	+06
POTTERY.				
1896,	3	1 61	.....	.....
1897,	3	1 54	—07	.....
1898,	3	1 50	—04	.....
1899,	3	1 52	+02	—09
PAVING BRICK.				
1896,	9	1 30	.....	.....
1897,	9	1 36	+06	.....
1898,	9	1 33	—03	.....
1899,	9	1 33	.....	+03
BUILDING BRICK.				
1896,	36	1 49	.....	.....
1897,	36	1 56	+07	.....
1898,	36	1 57	+01	.....
1899,	36	1 66	+09	+17

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as compared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
FIRE BRICK.				
1896,	18	\$1 37	.....	.....
1897,	18	1 33	—04	.....
1898,	18	1 49	+16	.....
1899,	18	1 55	+06	+18
SLATE ROOFING, ETC., TON- NAGE.				
1896,	7	1 30	.....	.....
1897,	7	1 42	+12	.....
1898,	7	1 31	—11	.....
1899,	7	1 35	+04	+05
SLATE ROOFING, ETC., SQUARES.				
1896,	17	1 31	.....	.....
1897,	17	1 36	+05	.....
1898,	17	1 44	+08	.....
1899,	17	1 43	—01	+12
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1896,	24	1 54	.....	.....
1897,	24	1 56	+02	.....
1898,	24	1 57	+01	.....
1899,	24	1 63	+06	+09

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
GLAZED AND CHROME KID.				
1896,	7	\$1 18	.....	.....
1897,	7	1 31	+13	.....
1898,	7	1 32	+01	.....
1899,	7	1 38	+06	+20
MEN'S, WOMEN'S, MISSES' AND CHILDREN'S SHOES.				
1896,	18	1 21	.....	.....
1897,	18	1 21	.....	.....
1898,	18	1 23	+02	.....
1899,	18	1 26	+03	+05
SUSPENDERS.				
1896,	2	95	.....	.....
1897,	2	70	—25	.....
1898,	2	1 09	+39	.....
1899,	2	1 26	+17	+31
HATS AND CAPS.				
1896,	3	1 22	.....	.....
1897,	3	1 27	+05	.....
1898,	3	1 10	—17	.....
1899,	3	1 21	+11	—01
FUR AND FELT HATS.				
1896,	5	1 30	.....	.....
1897,	5	1 59	+29	.....
1898,	5	1 54	—05	.....
1899,	5	1 52	—02	+22

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (--) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WOOL HATS.				
1896,	7	\$1 16	.....	.....
1897,	7	1 23	+07.	.....
1898,	7	1 05	—18	.....
1899,	7	1 14	+09	—02
UMBRELLAS AND PARASOLS.				
1896,	6	79	.....	.....
1897,	6	97	+18	.....
1898,	6	88	—09	.....
1899,	6	88	.....	+09
DRESS TRIMMINGS, BRAIDS, ETC.				
1896,	8	94	.....	.....
1897,	8	93	—01	.....
1898,	8	90	—03	.....
1899,	8	91	+01	—03
SHIRTS AND SHIRT WAISTS.				
1896,	10	1 02	.....	.....
1897,	10	91	—11	.....
1898,	10	91	.....	.....
1899,	10	1 00	+09	—02
NECKWEAR.				
1896,	3	1 25	.....	.....
1897,	3	1 18	—07	.....
1898,	3	1 22	+04	.....
1899,	3	1 23	+01	—02

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (-) as compared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
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COTTON AND WOOLEN CLOTHS.

1896,	26	\$1 18
1897,	26	1 20	+02
1898,	26	1 32	+12
1899,	26	1 36	+04	+18

CARPETS.

1896,	20	1 33	.....	.....
1897,	20	1 27	—06	.....
1898,	20	1 24	—03	.....
1899,	20	1 37	+13	+04

COTTON GOODS.

1896,	19	1 09	.....	.....
1897,	19	1 13	+04	.....
1898,	19	1 11	—02	.....
1899,	19	1 13	+02	+04

WOOLEN AND WORSTED CASSI-
MERES.

1896,	11	1 13	.....	.....
1897,	11	1 20	+07	.....
1898,	11	1 27	+07	.....
1899,	11	1 24	—03	+11

WOOLEN AND WORSTED FAB-
RICS.

1896,	17	1 14	.....	.....
1897,	17	1 09	—05	.....
1898,	17	1 17	+08	.....
1899,	17	1 20	+03	+06

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WOOLEN AND WORSTED YARNS.				
1896,	13	\$1 11	.....	.....
1897,	13	1 07	—04	.....
1898,	13	1 05	—02	.....
1899,	13	1 15	+10	+04
RUGS, YARNS, ETC.				
1896,	6	1 25	.....	.....
1897,	6	1 17	—08	.....
1898,	6	1 20	+03	.....
1899,	6	1 32	+12	+07
CARPET YARNS.				
1896,	12	1 28	.....	.....
1897,	12	1 27	—01	.....
1898,	12	1 27	.....	.....
1899,	12	1 29	+02	+01
COTTON YARNS.				
1896,	8	1 03	.....	.....
1897,	8	1 02	—01	.....
1898,	5	1 02	.....	.....
1899,	8	1 05	+03	+02
WORSTED YARNS.				
1896,	9	1 12	.....	.....
1897,	9	93	—19	.....
1898,	9	95	+02	.....
1899,	9	1 13	+18	+01

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase(+) or decrease (---) as com- pared with the preced- ing year.	Increase (+) or de- crease(---) 1899 as com pared with 1896.
COTTON AND WOOLEN YARNS.				
1896,	5	\$1 10	.....	.....
1897,	5	1 08	—02	.....
1898,	5	1 08	.....	.....
1899,	5	1 12	+04	+02
WOOLEN BLANKETS, FLAN- NELS, ETC.				
1896,	5	1 18	.....	.....
1897,	5	1 22	+04	.....
1898,	5	94	—28	.....
1899,	5	1 19	+25	+01
LACE GOODS.				
1896,	3	93	.....	.....
1897,	3	88	—05	.....
1898,	3	90	+02	.....
1899,	3	94	+04	+01
CHENILLE GOODS.				
1896,	3	81	.....	.....
1897,	3	84	+03	.....
1898,	3	95	+11	.....
1899,	3	1 13	+18	+32
UPHOLSTERY GOODS.				
1896,	10	1 18	.....	.....
1897,	10	1 24	+06	.....
1898,	10	1 32	+08	.....
1899,	10	1 40	+08	+22

AVERAGE DAILY WAGE—Continued.

COMPARISON OF AVERAGE DAILY WAGE, SKILLED AND UNSKILLED
—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND
1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Average daily wage.	Increase (+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease (-) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	\$0 97	.....	.....
1897,	15	91	—06	.....
1898,	15	96	+05	.....
1899,	15	1 00	+04	+03
HOSIERY.				
1896,	33	92	.....	.....
1897,	33	85	—07	.....
1898,	33	88	+03	.....
1899,	33	93	+05	+01
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	94	.....	.....
1897,	7	77	—17	.....
1898,	7	83	+06	.....
1899,	7	96	+13	+02
SILK—BROAD GOODS AND RIB- BONS.				
1896,	3	82	.....	.....
1897,	3	77	—05	.....
1898,	3	77	.....	.....
1899,	3	86	+09	+04
SILK—RIBBONS.				
1896,	4	98	.....	.....
1897,	4	1 17	+19	.....
1898,	4	1 12	—05	.....
1899,	4	1 15	+03	+17

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the relative per cent. of cost of basic materials to value of production in same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. basic material to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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STEEL CASTINGS.

1896,	7	27.9
1897,	7	28.9	+1.0
1898,	7	24.6	—4.3
1899,	7	28.7	+4.1	+1.8

STEEL BILLETS, SLABS,
BLOOMS, ETC.

1896,	4	80.0	.....	.....
1897,	4	70.0	—10.0	.....
1898,	4	80.8	+10.8	.....
1899,	4	76.8	—4.0	—3.2

TOOL STEEL.

1896,	2	37.1	.....	.....
1897,	2	29.7	—7.4	.....
1898,	2	20.6	—9.1	.....
1899,	2	20.5	—1	—16.6

IRON AND STEEL SPECIALTIES.

1896,	3	17.2	.....	.....
1897,	3	19.7	+2.5	.....
1898,	3	13.9	—5.8	.....
1899,	3	15.8	+1.9	—1.4

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	38.6	.....	.....
1897,	7	38.9	+3	.....
1898,	7	33.9	—5.0	.....
1899,	7	32.2	—1.7	—6.4
IRON SPECIALTIES.				
1896,	2	60.4	.....	.....
1897,	2	64.8	+4.4	.....
1898,	2	58.7	—6.1	.....
1899,	2	59.8	+1.1	—6
MALLEABLE IRON.				
1896,	4	30.5	.....	.....
1897,	4	28.0	—2.5	.....
1898,	4	30.5	+2.5	.....
1899,	4	29.9	—6	—6
BOLTS, NUTS, ETC.				
1896,	8	47.3	.....	.....
1897,	8	48.4	+1.1	.....
1898,	8	50.1	+1.7	.....
1899,	8	59.1	+9.0	+11.8
SPIKES AND RIVETS.				
1896,	2	63.0	.....	.....
1897,	2	62.5	—5	.....
1898,	2	57.6	—4.9	.....
1899,	2	65.3	+7.7	+2.3

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION—
Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments con- sidered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WIRE NAILS.				
1896,	3	55.0	.....	.....
1897,	3	58.9	+3.9	.....
1898,	3	52.4	—6.5	.....
1899,	3	38.9	—13.5	—16.1
TACKS AND SMALL NAILS.				
1896,	4	41.7	.....	.....
1897,	4	38.1	—3.6	.....
1898,	4	37.2	— .9	.....
1899,	4	35.4	—1.8	—6.3
WIRE.				
1896,	6	51.9	.....	.....
1897,	6	50.4	—1.5	.....
1898,	6	52.4	+2.0	.....
1899,	6	47.1	—5.3	—4.8
WIRE ROPE.				
1896,	2	47.5	.....	.....
1897,	2	38.6	—8.9	.....
1898,	2	37.9	— .7	.....
1899,	2	37.2	— .7	—10.3
WIRE GOODS.				
1896,	4	30.7	.....	.....
1897,	4	31.8	+1.1	.....
1898,	4	25.2	—6.6	.....
1899,	4	30.0	+4.8	— .7

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
WAGON AND CARRIAGE AXLES.				
1896,	4	29.7	.....	.....
1897,	4	29.6	—1	.....
1898,	4	21.8	—7.8	.....
1899,	4	30.5	+8.7	+8
CARRIAGE AND WAGON SPRINGS.				
1896,	2	42.2	.....	.....
1897,	2	35.1	—7.1	.....
1898,	2	31.6	—3.5	.....
1899,	2	34.8	+3.2	—7.4
SCALES, ETC.				
1896,	5	34.4	.....	.....
1897,	5	33.8	—6	.....
1898,	5	33.5	—3	.....
1899,	5	32.2	—1.3	—2.2
STOVES, RANGES, HEATERS, ETC.				
1896,	39	20.5	.....	.....
1897,	39	20.2	—3	.....
1898,	39	20.5	+3	.....
1899,	39	21.4	+9	+9
BATH BOILERS, TANKS, ETC.				
1896,	2	54.6	.....	.....
1897,	2	48.9	—5.7	.....
1898,	2	49.4	+5	.....
1899,	2	50.0	+6	—4.6

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
HARDWARE SPECIALTIES.				
1896,	14	26.8	.....	.....
1897,	14	24.9	-1.9	.....
1898,	14	24.8	-.1	.....
1899,	14	27.0	+2.2	+2
EDGE TOOLS.				
1896,	12	41.9	.....	.....
1897,	12	28.5	-13.4	.....
1898,	12	27.4	-1.1	.....
1899,	12	28.7	+1.3	-13.2
WRENCHES, PICKS, ETC.				
1896,	5	32.5	.....	.....
1897,	5	33.0	+.5	.....
1898,	5	29.0	-4.0	.....
1899,	5	33.4	+4.4	+.9
LOCOMOTIVES AND CARS BUILT AND REPAIRED.				
1896,	3	54.2	.....	.....
1897,	3	50.2	-4.0	.....
1898,	3	52.4	+2.2	.....
1899,	3	56.2	+3.8	+2.0
WROUGHT IRON PIPE AND TUBES.				
1896,	5	66.9	.....	.....
1897,	5	62.6	-4.3	.....
1898,	5	56.9	-5.7	.....
1899,	5	59.2	+2.3	-7.7

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CAST IRON PIPE.				
1896,	3	66.5	.....	.....
1897,	3	64.8	—1.7	.....
1898,	3	64.3	—1.5	.....
1899,	3	67.6	+3.3	+1.1
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	50.2	.....	.....
1897,	20	55.4	+5.2	.....
1898,	20	54.0	—1.4	.....
1899,	20	58.7	+4.7	+8.5
IRON AND STEEL BRIDGES.				
1896,	8	58.5	.....	.....
1897,	8	55.6	—2.9	.....
1898,	8	57.2	+1.6	.....
1899,	8	62.7	+5.5	+4.2
LOCOMOTIVES, STATIONARY ENGINES, ETC.				
1896,	9	48.1	.....	.....
1897,	9	46.1	—2.0	.....
1898,	9	41.9	—4.2	.....
1899,	9	49.0	+7.1	+1.9
ENGINES, BOILERS, ETC.				
1896,	10	48.2	.....	.....
1897,	10	49.9	+1.7	.....
1898,	10	49.0	—1.9	.....
1899,	10	51.0	+2.0	+2.8

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION—
Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
 ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	49.3	.....	.....
1897,	11	44.5	—4.8	.....
1898,	11	33.5	—11.0	.....
1899,	11	56.3	+22.8	+7.0
IRON VESSELS AND ENGINES.				
1896,	3	38.5	.....	.....
1897,	3	44.0	+5.5	.....
1898,	3	45.2	+1.2	.....
1899,	3	55.8	+10.6	+17.3
BOILERS, TANKS, STACKS, ETC.				
1896,	21	39.0	.....	.....
1897,	21	45.4	+6.4	.....
1898,	21	47.8	+2.4	.....
1899,	21	53.5	+5.7	+14.5
MACHINERY.				
1896,	21	32.4	.....	.....
1897,	21	31.2	—1.2	.....
1898,	21	31.2	.....	.....
1899,	21	37.1	+5.9	+4.7
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	33.1	.....	.....
1897,	25	35.4	+2.3	.....
1898,	25	35.4	.....	.....
1899,	25	37.0	+1.6	+3.9

**COST OF BASIC MATERIAL TO VALUE OF PRODUCTION—
Continued.**

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
FILES, ETC.				
1896,	2	29.7	.....	.....
1897,	2	28.0	—1.7	.....
1898,	2	20.7	—7.3	.....
1899,	2	23.0	+2.3	—6.7
SAWS.				
1896,	3	42.0	.....	.....
1897,	3	37.5	—4.5	.....
1898,	3	36.8	— .7	.....
1899,	3	37.8	+1.0	—4.2
PLUMBER SUPPLIES.				
1896,	3	*	.....	.....
1897,	3	*	.....	.....
1898,	3	*	.....	.....
1899,	3	38.4	.....	.....
ELECTRICAL SUPPLIES.				
1896,	4	36.6	.....	.....
1897,	4	39.4	+2.8	.....
1898,	4	34.3	—5.1	.....
1899,	4	31.2	—3.1	—5.4
SHOVELS, SPADES, SCOOPS, ETC.				
1896,	8	38.6	.....	.....
1897,	8	34.4	—4.2	.....
1898,	8	29.7	—4.7	.....
1899,	8	31.2	+1.5	—7.4

*Incomplete returns.

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION—
Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
SAFES AND VAULT DOORS.				
1896,	2	43.7	.....	.....
1897,	2	40.1	—3.6	.....
1898,	2	43.1	+3.0	.....
1899,	2	41.8	—1.3	—1.9
ORNAMENTAL METAL WORK.				
1896,	2	40.2	.....	.....
1897,	2	42.4	+2.2	.....
1898,	2	46.9	+4.5	.....
1899,	2	53.0	+6.1	+12.8
METAL AND METALLIC GOODS.				
1896,	3	29.1	.....	.....
1897,	3	27.2	—1.9	.....
1898,	3	28.0	+ .8	.....
1899,	3	27.4	— .6	—1.7
BUILDING AND STRUCTURAL IRON WORK.				
1896,	2	43.8	.....	.....
1897,	2	55.0	+11.2	.....
1898,	2	60.3	+5.3	.....
1899,	2	56.9	—3.4	+13.1
IRON CHAINS.				
1896,	5	38.4	.....	.....
1897,	5	37.6	— .8	.....
1898,	5	40.5	+2.9	.....
1899,	5	43.2	+2.7	+4.8

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON FENCES AND RAILINGS.				
1896,	7	40.1	.....	.....
1897,	7	40.3	+2	.....
1898,	7	43.8	+3.5	.....
1899,	7	51.1	+7.3	+11.0
AGRICULTURAL IMPLEMENTS.				
1896,	13	44.9	.....	.....
1897,	13	41.7	—3.2	.....
1898,	13	41.0	—7	.....
1899,	13	42.9	+1.9	—2.0
STEAM PUMPS.				
1896,	2	43.9	.....	.....
1897,	2	51.1	+7.2	.....
1898,	2	39.5	—11.6	.....
1899,	2	42.9	+3.4	—1.0
BICYCLES.				
1896,	4	54.8	.....	.....
1897,	4	70.4	+15.6	.....
1898,	4	64.7	—5.7	.....
1899,	4	59.3	—5.4	+4.5
PIANOS AND ORGANS.				
1896,	3	36.0	.....	.....
1897,	3	39.3	+3.3	.....
1898,	3	42.1	+2.8	.....
1899,	3	36.5	—5.6	+5

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
TINWARE.				
1896,	5	45.8	.....	.....
1897,	5	46.3	+ .5	.....
1898,	5	46.3	.....	.....
1899,	5	49.9	+3.6	+4.1
PAPER MANUFACTORIES.				
1896,	8	47.0	.....	.....
1897,	8	43.9	-3.1	.....
1898,	8	44.8	+ .9	.....
1899,	8	40.9	-3.9	-6.1
WALL PAPER.				
1896,	5	52.3	.....	.....
1897,	5	51.6	-.7	.....
1898,	5	51.9	+ .3	.....
1899,	5	51.3	-.6	-1.0
CIGARS.				
1896,	48	37.8	.....	.....
1897,	48	39.8	+2.0	.....
1898,	48	40.8	+1.0	.....
1899,	48	39.0	-1.8	+1.2
BOOK BINDING.				
1896,	3	37.3	.....	.....
1897,	3	38.2	+ .9	.....
1898,	3	36.3	-1.9	.....
1899,	3	37.1	+ .8	-.2

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION—
Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CORDAGE ROPE AND TWINE.				
1896,	6	70.3	.....	.....
1897,	6	73.8	+3.5	.....
1898,	6	71.2	—2.6	.....
1899,	6	72.4	+1.2	+2.1
PAPER, PAPER BOXES, ENVELOPES, ETC.				
1896,	27	46.6	.....	.....
1897,	27	47.2	+ .6	.....
1898,	27	45.8	—1.4	.....
1899,	27	45.7	— .1	— .9
POTTERY.				
1896,	3	28.9	.....	.....
1897,	3	29.8	+ .9	.....
1898,	3	26.4	—3.4	.....
1899,	3	24.3	—2.1	—4.6
PAVING BRICK.				
1896,	9	10.6	.....	.....
1897,	9	8.7	—1.9	.....
1898,	9	6.1	—2.6	.....
1899,	9	8.4	+2.3	—2.2
BUILDING BRICK.				
1896,	36	11.1	.....	.....
1897,	36	11.0	— .1	.....
1898,	36	11.7	+ .7	.....
1899,	36	10.8	— .9	— .3

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
FIRE BRICK.				
1896,	18	25.8	.....	.....
1897,	18	24.4	—1.4	.....
1898,	18	21.8	—2.6	.....
1899,	18	22.2	+ .4	—3.6
SLATE ROOFING, ETC., TON- NAGE.				
1896,	7	7.6	.....	.....
1897,	7	7.3	— .3	.....
1898,	7	6.5	— .8	.....
1899,	7	7.3	+ .8	— .3
SLATE ROOFING, ETC., SQUARES.				
1896,	16	9.7	.....	.....
1897,	16	9.2	— .5	.....
1898,	16	9.2	.....	.....
1899,	16	8.7	— .5	—1.0
WINDOW GLASS, BOTTLES AND TABLE GOODS.				
1896,	24	26.6	.....	.....
1897,	24	25.0	—1.6	.....
1898,	24	21.7	—3.3	.....
1899,	24	21.7	.....	—4.9

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
GLAZED AND CHROME KID.				
1896,	7	70.0	.....	.....
1897,	7	66.8	—3.2	.....
1898,	7	63.8	—3.0	.....
1899,	7	67.4	+3.6	—2.6
MEN'S, WOMEN'S, MISSES' AND CHILDREN'S SHOES.				
1896,	18	57.1	.....	.....
1897,	18	58.9	+1.8	.....
1898,	18	57.7	—1.2	.....
1899,	18	58.1	+ .4	+1.0
SUSPENDERS.				
1896,	2	63.0	.....	.....
1897,	2	66.9	+3.9	.....
1898,	2	62.6	—4.3	.....
1899,	2	65.2	+2.6	+2.2
HATS AND CAPS.				
1896,	3	54.1	.....	.....
1897,	3	52.9	—1.2	.....
1898,	3	51.2	—1.7	.....
1899,	3	62.0	+10.8	+7.9
FUR AND FELT HATS.				
1896,	5	30.6	.....	.....
1897,	5	30.6	.....	.....
1898,	5	28.6	—2.0	.....
1899,	5	29.4	+ .8	—1.2

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
WOOL HATS.				
1896,	7	51.8	.....	.....
1897,	7	53.0	+1.2	.....
1898,	7	49.3	—3.7	.....
1899,	7	44.7	—4.6	—7.1
UMBRELLAS AND PARASOLS.				
1896,	6	59.8	.....	.....
1897,	6	60.2	+4	.....
1898,	6	64.3	+4.1	.....
1899,	6	56.9	—7.4	—2.9
DRESS TRIMMINGS, BRAIDS, ETC.				
1896,	8	44.0	.....	.....
1897,	8	46.6	+2.6	.....
1898,	8	51.3	+4.7	.....
1899,	8	43.8	—7.5	—2
SHIRTS AND SHIRT WAISTS.				
1896,	10	46.6	.....	.....
1897,	10	49.8	+3.2	.....
1898,	10	52.3	+2.5	.....
1899,	10	50.3	—2.0	+3.7
NECKWEAR.				
1896,	3	57.0	.....	.....
1897,	3	56.8	—2	.....
1898,	3	57.1	+3	.....
1899,	3	59.8	+2.7	+2.8

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896
COTTON AND WOOLEN CLOTHS.				
1896.	26	53.5	.....	.....
1897,	26	59.0	+5.5	.....
1898,	26	58.1	— .9	.....
1899,	26	57.7	— .4	+4.
CARPETS.				
1896,	20	58.6	.....	.....
1897,	20	61.2	+2.6	.....
1898,	20	59.4	—1.8	.....
1899,	20	59.3	— .1	+.
COTTON GOODS.				
1896,	19	53.2	.....	.....
1897,	19	50.8	—2.4	.....
1898,	19	48.1	—2.7	.....
1899,	19	48.9	+ .8	—4.
WOOLEN AND WORSTED CASSI- MERES.				
1896,	11	52.5	.....	.....
1897,	11	55.3	+2.8	.....
1898,	11	56.5	+1.2	.....
1899,	11	58.0	+1.5	+5.5
WOOLEN AND WORSTED FAB- RICS.				
1896,	17	53.4	.....	.....
1897,	17	56.0	+2.6	.....
1898,	17	57.0	+1.0	.....
1899,	17	58.2	+1.2	+4.8

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION—
Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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WOOLEN AND WORSTED YARNS.

1896,	13	65.8
1897,	13	66.4	+ .6
1898,	13	54.2	—12.2
1899,	13	52.9	—1.3	—12.9

RUGS, YARNS, ETC.

1896,	6	49.4	.....	.....
1897,	6	49.4	.....	.....
1898,	6	46.7	—2.7	.....
1899,	6	44.9	—1.8	—4.5

CARPET YARNS.

1896,	12	68.6	.....	.....
1897,	12	72.5	+3.9	.....
1898,	12	68.0	—4.5	.....
1899,	12	71.0	+3.0	+2.4

COTTON YARNS.

1896,	8	66.8	.....	.....
1897,	8	65.4	—1.4	.....
1898,	8	60.5	—4.9	.....
1899,	8	59.5	—1.0	—7.3

WORSTED YARNS.

1896,	9	59.1	.....	.....
1897,	9	59.8	+ .7	.....
1898,	9	59.9	+ .1	.....
1899,	9	63.6	+3.7	+4.5

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION— Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896
COTTON AND WOOLEN YARNS.				
1896,	5	58.6	.....	.....
1897,	5	53.4	—5.2	.....
1898,	5	49.5	—3.9	.....
1899,	5	45.9	—3.6	—12.7
WOOLEN BLANKETS, FLAN- NELS, ETC.				
1896,	5	48.4	.....	.....
1897,	5	52.3	+3.9	.....
1898,	5	53.8	+1.5	.....
1899,	5	49.9	—3.9	+1.5
LACE GOODS.				
1896,	3	20.9	.....	.....
1897,	3	23.2	+2.3	.....
1898,	3	23.8	+1.6	.....
1899,	3	26.8	+3.0	+5.9
CHENILLE GOODS.				
1896,	3	59.2	.....	.....
1897,	3	57.5	—1.7	.....
1898,	3	60.3	+2.8	.....
1899,	3	54.9	—5.4	—4.3
UPHOLSTERY GOODS.				
1896,	10	53.4	.....	.....
1897,	10	52.3	—1.1	.....
1898,	10	52.4	+1.1	.....
1899,	10	49.2	—3.2	—4.2

COST OF BASIC MATERIAL TO VALUE OF PRODUCTION—
Continued.

COMPARISON OF BASIC MATERIAL TO VALUE OF PRODUCTION—SAME
ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. basic ma- terial to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
KNIT GOODS, UNDERWEAR.				
1896,	15	59.3	.....	.....
1897,	15	58.2	—1.1	.....
1898,	15	58.8	+0.6	.....
1899,	15	57.6	—1.2	—1.7
HOSIERY.				
1896,	33	42.9	.....	.....
1897,	33	46.5	+3.6	.....
1898,	33	47.0	+ .5	.....
1899,	33	44.4	—2.6	+1.5
SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.				
1896,	7	67.0	.....	.....
1897,	7	68.4	+1.4	.....
1898,	7	67.2	—1.2	.....
1899,	7	67.0	—:2	.....
SILK—BROAD GOODS AND RIB- BONS.				
1896,	3	27.8	.....	.....
1897,	3	42.5	+14.7	.....
1898,	3	41.5	—1.0	.....
1899,	3	42.6	+1.1	+14.8
SILK—RIBBONS.				
1896,	4	43.9	.....	.....
1897,	4	51.4	+7.5	.....
1898,	4	48.2	—3.2	.....
1899,	4	49.9	+1.7	+6.0

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the relative per cent. of wages to value of production by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
STEEL CASTINGS.				
1896,	7	30.9	.....	.....
1897,	7	34.4	+3.5	.....
1898,	7	29.5	—4.9	.....
1899,	7	29.3	—2	—1.6
STEEL BILLETS, SLABS, BLOOMS, ETC.				
1896,	4	8.7	.....	.....
1897,	4	6.0	—2.7	.....
1898,	4	8.5	+2.5	.....
1899,	4	6.6	—1.9	—2.1
TOOL STEEL.				
1896,	2	21.9	.....	.....
1897,	2	29.6	+7.7	.....
1898,	2	35.9	+6.3	.....
1899,	2	30.7	—5.2	+8.8
IRON AND STEEL SPECIALTIES.				
1896,	3	21.3	.....	.....
1897,	3	23.0	+1.7	.....
1898,	3	18.7	—4.3	.....
1899,	3	16.1	—2.6	—5.2

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. wages to value of production.	Increase(+) or decrease (-) as com- pared with the preced- ing year.	Increase (+) or de- crease(-) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
1896,	7	33.2	.....	.....
1897,	7	38.3	+5.1	.....
1898,	7	38.0	— .3	.....
1899,	7	31.8	—6.2	—1.4
IRON SPECIALTIES				
1896.	2	22.8	.....	.....
1897,	2	19.1	—3.7	.....
1898,	2	23.9	+4.8	.....
1899,	2	22.8	—1.1	.....
MALLEABLE IRON.				
1896,	4	36.7	.....	.....
1897,	4	39.8	+3.1	.....
1898,	4	33.9	—5.9	.....
1899,	4	33.1	— .8	—3.6
BOLTS, NUTS, ETC.				
1896,	8	28.5	.....	.....
1897,	8	25.2	—3.3	.....
1898,	8	24.5	— .7	.....
1899,	8	19.3	—5.2	—9.2

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
SPIKES AND RIVETS.				
1896,	2	11.4	.....	.....
1897,	2	11.4	.....	.....
1898,	2	10.4	—1.0	.....
1899,	2	9.7	— .7	—1.7
WIRE NAILS.				
1896,	2	18.5	.....	.....
1897,	2	17.1	—1.4	.....
1898,	2	18.4	+1.3	.....
1899,	2	13.9	—4.5	—4.6
TACKS AND SMALL NAILS.				
1896,	4	29.5	.....	.....
1897,	4	29.6	+ .1	.....
1898,	4	26.0	—3.6	.....
1899,	4	28.3	+2.3	—1.2
WIRE.				
1896,	6	21.2	.....	.....
1897,	6	20.2	—1.0	.....
1898,	6	22.0	+1.8	.....
1899,	6	23.5	+1.5	+2 3

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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WIRE ROPE.

1896,	2	11.4
1897,	2	12.5	+1.1
1898,	2	13.6	+1.1
1899,	2	11.7	—1.9	+1.3

WIRE GOODS.

1896,	4	30.9
1897,	4	27.5	—3.4	.....
1898,	4	18.9	—8.6	.....
1899,	4	18.4	—1.5	—12.5

WAGON AND CARRIAGE AXLES.

1896,	4	31.0	.....	.....
1897,	4	32.2	+1.2	.....
1898,	4	32.5	+1.3	.....
1899,	4	28.3	—4.2	—2.7

CARRIAGE AND WAGON SPRINGS.

1896,	2	34.0	.....	.....
1897,	2	33.1	—1.9	.....
1898,	2	32.2	—1.9	.....
1899,	2	27.5	—4.7	—6.5

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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SCALES, ETC.

1896,	5	28.7
1897,	5	28.3	— .4
1898,	5	29.6	+1.3
1899,	5	28.1	—1.5	— .6

STOVES, RANGES, HEATERS, ETC.

1896,	39	39.6	.....	.....
1897,	39	39.5	— .1	.....
1898,	39	41.5	+2.0	.....
1899,	39	39.2	—2.3	— .4

BATH BOILERS, TANKS, ETC.

1896,	2	19.8	.....	.....
1897,	2	19.6	— .2	.....
1898,	2	21.9	+2.3	.....
1899,	2	21.7	— .2	+1.9

HARDWARE SPECIALTIES.

1896,	14	42.2	.....	.....
1897,	14	39.2	—3.0	.....
1898,	14	39.9	+ .7	.....
1899,	14	37.2	—2.7	—5.0

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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EDGE TOOLS.

1896,	12	32.9
1897,	12	39.0	+6.1
1898,	12	37.6	—1.4
1899,	12	34.1	—3.5	+1.2

WRENCHES, PICKS, ETC.

1896,	5	29.3	.....	.....
1897,	5	26.6	—2.7	.....
1898,	5	28.1	+1.5	.....
1899,	5	26.2	—1.9	—3.1

LOCOMOTIVES AND CARS BUILT AND REPAIRED.

1896,	3	43.4	.....	.....
1897,	3	46.2	+2.8	.....
1898,	3	42.6	—3.6	.....
1899,	3	40.4	—2.2	—3.0

WROUGHT IRON PIPE AND TUBES.

1896,	5	18.2	.....	.....
1897,	5	18.0	—2	.....
1898,	5	16.9	—1.1	.....
1899,	5	17.5	+6	—7

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
CAST IRON PIPE.				
1896,	3	24.3	.....	.....
1897,	3	21.2	—3.1	.....
1898,	3	20.1	—1.1	.....
1899,	3	19.3	— .8	—5.0
BRASS, COPPER AND BRONZE GOODS.				
1896,	20	23.4	.....	.....
1897,	20	25.3	+1.9	.....
1898,	20	24.1	—1.2	.....
1899,	20	19.7	—4.4	—3.7
IRON AND STEEL BRIDGES.				
1896,	8	17.2	.....	.....
1897,	8	18.1	+ .9	.....
1898,	8	17.4	— .7	.....
1899,	8	14.2	—3.2	—3.0
LOCOMOTIVES, STATIONARY ENGINES, ETC.				
1896,	9	35.6	.....	.....
1897,	9	35.6	.....	.....
1898,	9	35.5	— .1	.....
1899,	9	32.8	—2.7	—2.8

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
ENGINES, BOILERS, ETC.				
1896,	10	31.6	.....	.....
1897,	10	31.6	.....	.....
1898,	10	32.3	+ .7	.....
1899,	10	25.9	—6.4	—5.7
CARS, SPRINGS, AXLES AND RAILWAY SUPPLIES.				
1896,	11	21.1	.....	.....
1897,	11	21.3	+ .2	.....
1898,	11	18.1	—3.2	.....
1899,	11	18.1	.....	—3.0
IRON VESSELS AND ENGINES.				
1896,	3	46.5	.....	.....
1897,	3	41.0	—5.5	.....
1898,	3	43.4	+2.4	.....
1899,	3	37.4	—6.0	—9.1
BOILERS, TANKS, STACKS, ETC.				
1896,	21	27.8	.....	.....
1897,	21	28.1	+ .3	.....
1898,	21	26.1	—2.0	.....
1899,	21	22.6	—3.5	—5.2

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
MACHINERY.				
1896,	21	36.2	.....	.....
1897,	21	36.1	— .1	.....
1898,	21	37.0	+ .9	.....
1898,	21	35.8	—1.2	— .4
FOUNDRIES AND MACHINE SHOPS.				
1896,	25	36.2	.....	.....
1897,	25	33.6	—2.6	.....
1898,	25	33.2	— .4	.....
1899,	25	30.2	—3.0	—6.0
FILES, ETC.				
1896,	2	33.9	.....	.....
1897,	2	33.6	— .3	.....
1898,	2	29.4	—4.2	.....
1899,	2	29.8	+ .4	—4.1
SAWS.				
1896,	3	29.0	.....	.....
1897,	3	30.2	+1.2	.....
1898,	3	30.0	— .2	.....
1899,	3	28.8	—1.2	— .2

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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PLUMBER SUPPLIES.

1896,	3	38.9
1897,	3	39.2	+ .3
1898,	3	39.5	+ .3
1899,	3	35.0	—4.5	—3.9

ELECTRICAL SUPPLIES.

1896,	4	34.9	.....	.....
1897,	4	34.2	— .7	.....
1898,	4	28.3	—5.9	.....
1899,	4	24.9	—3.4	—10.0

SHOVELS, SPADES, SCOOPS, ETC.

1896,	8	26.8	.....	.....
1897,	8	25.2	—1.6	.....
1898,	8	23.7	—1.5	.....
1899,	8	19.5	—4.2	—7.3

SAFES AND VAULT DOORS.

1896,	2	36.0	.....	.....
1897,	2	38.0	+2.0	.....
1898,	2	39.9	+1.9	.....
1899,	2	38.2	—1.7	+2.2

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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ORNAMENTAL METAL WORK.

1896,	2	40.1
1897,	2	37.8	—2.3
1898,	2	43.7	+5.9
1899,	2	37.7	—6.0	—2.4

METAL AND METALLIC GOODS.

1896,	3	36.3	.....	.....
1897,	3	35.7	— .6	.....
1898,	3	35.7	.....	.....
1899,	3	35.5	— .2	— .8

BUILDING AND STRUCTURAL IRON WORK.

1896,	2	32.0	.....	.....
1897,	2	27.6	—4.4	.....
1898,	2	21.4	—6.2	.....
1899,	2	30.5	+9.1	—1.5

IRON CHAINS.

1896,	5	27.7	.....	.....
1897,	5	28.8	+1.1	.....
1898,	5	29.4	+ .6	.....
1899,	5	24.0	—5.4	—3.7

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
IRON FENCES AND RAILINGS.				
1896,	7	31.4	.....	.....
1897,	7	33.6	+2.2	.....
1898,	7	30.6	—3.0	.....
1899,	7	26.8	—3.8	—4.6
AGRICULTURAL IMPLEMENTS.				
1896,	13	26.5	.....	.....
1897,	13	24.7	—1.8	.....
1898,	13	25.4	+ .7	.....
1899,	13	24.6	— .8	—1.9
STEAM PUMPS.				
1896,	2	36.3	.....	.....
1897,	2	41.3	+5.0	.....
1898,	2	35.7	—5.6	.....
1899,	2	40.5	+4.8	+4.2
BICYCLES.				
1896,	4	19.2	.....	.....
1897,	4	24.4	+5.2	.....
1898,	4	22.7	—1.7	.....
1899,	4	25.6	+2.9	+6.4

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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PIANOS AND ORGANS.

1896,	3	38.4
1897,	3	35.0	—3.4
1898,	3	34.4	— .6
1899,	3	30.7	—3.7	—7.7

TINWARE.

1896,	5	22.5	.....	.....
1897,	5	22.9	+ .4	.....
1898,	5	22.0	— .9	.....
1899,	5	21.7	— .3	— .8

PAPER MANUFACTORIES.

1896,	8	17.2	.....	.....
1897,	8	17.8	+ .6	.....
1898,	8	17.8	.....	.....
1899,	8	16.2	—1.6	—1.0

WALL PAPER.

1896,	5	14.9	.....	.....
1897,	5	13.7	—1.2	.....
1898,	5	12.9	— .8	.....
1899,	5	12.5	— .4	—2.4

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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CIGARS.

1896,	48	25.5
1897,	48	25.2	— .3
1898,	48	25.2
1899,	48	25.1	— .1	— .4

BOOK BINDING.

1896,	3	38.7
1897,	3	40.9	+2.2	.....
1898,	3	41.7	+ .8	.....
1899,	3	41.4	— .3	+2.7

CORDAGE ROPE AND TWINE.

1896,	6	12.9	.....	.....
1897,	6	14.5	+1.6	.....
1898,	6	13.7	— .8	.....
1899,	6	12.8	— .9	— .1

PAPER, PAPER BOXES, ENVELOPES, ETC.

1896,	27	24.1	.....	.....
1897,	27	24.9	+ .8	.....
1898,	27	24.9	.....	.....
1899,	27	27.4	+2.5	+3.3

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
POTTERY.				
1896,	3	39.5	.....	.....
1897,	3	39.8	+ .3	.....
1898,	3	36.9	—2.9	.....
1899,	3	36.3	— .6	—3.2
PAVING BRICK.				
1896,	9	42.9	.....	.....
1897,	9	41.5	—1.4	.....
1898,	9	42.3	+ .8	.....
1899,	9	43.7	+1.4	+ .8
BUILDING BRICK.				
1896,	36	42.4	.....	.....
1897,	36	42.7	+ .3	.....
1898,	36	43.9	+1.2	.....
1899,	36	41.4	—2.5	—1.0
FIRE BRICK.				
1896,	18	44.3	.....	.....
1897,	18	45.8	+1.5	.....
1898,	18	44.0	—1.8	.....
1899,	18	45.6	+1.6	+1.3

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease(—) as compared with the preceding year.	Increase (+) or decrease(—) 1899 as compared with 1896.
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SLATE ROOFING, ETC, TONNAGE.

1896,	7	66.2
1897,	7	53.6	—12.6
1898,	7	47.9	—5.7
1899,	7	48.5	+ .6	—17.7

SLATE ROOFING, ETC., SQUARES.

1896,	16	65.3	.....	.....
1897,	16	60.1	—5.2	.....
1898,	16	62.9	+2.8	.....
1899,	16	59.2	—3.7	—6.1

WINDOW GLASS, BOTTLES AND TABLE GOODS.

1896,	24	45.0	.....	.....
1897,	24	43.9	—1.1	.....
1898,	24	43.6	— .3	.....
1899,	24	43.6	.....	—1.4

GLAZED AND CHROME KID.

1896,	7	11.9	.....	.....
1897,	7	12.7	+ .8	.....
1898,	7	11.6	—1.1	.....
1899,	7	11.7	+ .1	— .2

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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MEN'S, WOMEN'S, MISSES' AND CHILDREN'S SHOES.

1896,	18	22.9
1897,	18	23.4	+ .5
1898,	18	23.1	— .3
1899,	18	22.8	— .3	— .1

SUSPENDERS.

1896,	2	9.7	.....	.....
1897,	2	9.7	.....	.....
1898,	2	10.5	+ .8	.....
1899,	2	12.7	+2.2	—3.0

HATS AND CAPS.

1896,	3	23.1	.....	.....
1897,	3	22.9	— .2	.....
1898,	3	23.9	+1.0	.....
1899,	3	27.5	+3.6	+4.4

FUR AND FELT HATS.

1896,	5	26.6	.....	.....
1897,	5	33.0	+6.4	.....
1898,	5	34.4	+1.4	.....
1899,	5	32.9	—1.5	+6.3

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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WOOL HATS.

1896,	7	24.1
1897,	7	22.0	—2.1
1898,	7	22.1	+1.1
1899,	7	21.9	—2.2	—2.2

UMBRELLAS AND PARASOLS.

1896,	6	12.3	.....	.....
1897,	6	13.9	+1.6	.....
1898,	6	11.7	—2.2	.....
1899,	6	11.7	.....	—1.6

DRESS TRIMMINGS, BRAIDS, ETC.

1896,	8	24.5	.....	.....
1897,	8	25.8	+1.3	.....
1898,	8	24.2	—1.6	.....
1899,	8	23.0	—1.2	—1.5

SHIRTS AND SHIRT WAISTS.

1896,	10	25.2	.....	.....
1897,	10	25.6	+1.4	.....
1898,	10	24.9	—1.7	.....
1899,	10	26.1	+1.2	+1.9

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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NECKWEAR.

1896,	3	19.1
1897,	3	17.8	—1.3
1898,	3	18.4	+ .6
1899,	3	16.9	—1.5	—2.2

COTTON AND WOOLEN CLOTHS.

1896,	26	25.9	.....	.....
1897,	26	25.6	— .3	.....
1898,	26	25.3	— .3	.....
1899,	26	23.4	—1.9	—2.5

CARPETS.

1896,	20	21.8	.....	.....
1897,	20	21.7	— .1	.....
1898,	20	21.0	— .7	.....
1899,	20	20.0	—1.0	—1.8

COTTON GOODS.

1896,	19	29.0	.....	.....
1897,	19	29.9	+ .9	.....
1898,	19	30.7	+ .8	.....
1899,	19	31.0	+ .3	+2.0

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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WOOLEN AND WORSTED CASSIMERES.

1896,	11	21.3
1897,	11	20.0	—1.3
1898,	11	20.2	+ .2
1899,	11	19.0	—1.2	—2.3

WOOLEN AND WORSTED FABRICS.

1896,	17	20.3	.....	.....
1897,	17	19.8	— .5	.....
1898,	17	19.9	+ .1	.....
1899,	17	20.0	+ .1	— .3

WOOLEN AND WORSTED YARNS.

1896,	13	16.2	.....	.....
1897,	13	14.9	—1.3	.....
1898,	13	11.6	—3.3	.....
1899,	13	10.2	—1.4	—6.0

RUGS, YARNS, ETC.

1896,	6	24.8	.....	.....
1897,	6	24.4	— .4	.....
1898,	6	25.2	+ .8	.....
1899,	6	26.0	+ .8	+1.2

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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CARPET YARNS.

1896,	12	15.6
1897,	12	13.4	—2.2
1898,	12	14.0	+ .6
1899,	12	13.7	— .3	—1.9

COTTON YARNS.

1896,	8	16.7	.....	.....
1897,	8	18.1	+1.4	.....
1898,	8	19.4	+1.3	.....
1899,	8	18.6	— .8	+1.9

WORSTED YARNS.

1896,	9	16.6	.....	.....
1897,	9	14.2	—2.4	.....
1898,	9	15.6	+1.4	.....
1899,	9	12.7	—2.9	—3.9

COTTON AND WOOLEN YARNS.

1896,	5	22.7	.....	.....
1897,	5	22.1	— .6	.....
1898,	5	23.0	+ .9	.....
1899,	5	24.6	+1.6	+1.9

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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WOOLEN BLANKETS, FLANNELS, ETC.

1896,	5	20.0
1897,	5	21.6	+1.6
1898,	5	16.6	—5.0
1899,	5	19.7	+3.1	—3

LACE GOODS.

1896,	3	21.3	.....	.....
1897,	3	20.6	—7	.....
1898,	3	22.1	+1.5	.....
1899,	3	24.0	+1.9	+2.7

CHENILLE GOODS.

1896,	3	27.5	.....	.....
1897,	3	29.5	+2.0	.....
1898,	3	28.9	—6	.....
1899,	3	30.6	+1.7	+3.1

UPHOLSTERY GOODS.

1896,	10	25.2	.....	.....
1897,	10	26.7	+1.5	.....
1898,	10	27.3	+6	.....
1899,	10	26.2	—1.1	+1.0

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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KNIT GOODS, UNDERWEAR.

1896,	15	20.5
1897,	15	19.9	— .6
1898,	15	19.7	— .2
1899,	15	20.8	+1.1	+ .3

HOSIERY.

1896,	33	30.5	.....	.....
1897,	33	30.7	+ .2	.....
1898,	33	30.5	— .2	.....
1899,	33	30.9	+ .4	+ .4

SILK—BROAD GOODS, THROWN SILK, YARNS, ETC.

1896,	7	17.3	.....	.....
1897,	7	16.9	— .4	.....
1898,	7	16.7	— .2	.....
1899,	7	14.1	—2.6	—3.2

SILK—BROAD GOODS AND RIBBONS.

1896,	3	12.9	.....	.....
1897,	3	20.4	+7.5	.....
1898,	3	18.1	—2.3	.....
1899,	3	17.0	—1.1	+4.1

RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—Continued.

COMPARISON OF RELATIVE PER CENT. OF WAGES TO VALUE OF PRODUCTION—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Relative per cent. wages to value of production.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
SILK—RIBBONS.				
1896,	4	17.8	.....	.....
1897,	4	20.9	+3.1	.....
1898,	4	20.0	— .9	.....
1899,	4	21.0	+1.0	+3.2

PRODUCTION IN TONS OR QUANTITY.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

NOTE.—In this table the aggregate production, in tons, or quantity, by the same establishments for the years 1896, 1897, 1898 and 1899 is presented, with the relative increase or decrease, together with the increase or decrease 1899 over 1896. Ninety-three industries, representing 855 establishments, are considered.

Character of Industry and Years.	Number of establishments considered.	Total production in ton, or given quantity.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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STEEL CASTINGS.

		Tons.		
1896,	7	17,362
1897,	7	18,313	+951
1898,	7	27,786	+9,473
1899,	7	34,845	+7,059	+17,483

STEEL BILLETS, SLABS, BLOOMS, ETC.

1896,	4	429,553	.....	.....
1897,	4	674,744	+245,191	.....
1898,	4	722,475	+47,731	.....
1899,	4	842,183	+119,708	+412,630

TOOL STEEL.

1896,	2	991	.....	.....
1897,	2	528	—463	.....
1898,	2	905	+377	.....
1899,	2	1,088	+183	+97

IRON AND STEEL SPECIALTIES.

1896,	3	1,095	.....	.....
1897,	3	1,115	+20	.....
1898,	3	824	—291	.....
1899,	3	932	+108	—163

PRODUCTION IN TONS OR QUANTITY—Continued.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total pro- duction in ton, or given quantity.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
IRON AND STEEL FORGINGS.				
		Tons.		
1896,	7	4,110	.....	.....
1897,	7	3,553	—557	.....
1898,	7	6,866	+3,313	.....
1899,	7	9,813	+2,947	+5,703
IRON SPECIALTIES.				
1896,	2	1,209	.....	.....
1897,	2	2,510	+1,301	.....
1898,	2	1,061	—1,449	.....
1899,	2	913	—148	—296
MALLEABLE IRON.				
1896,	4	30,888	.....	.....
1897,	4	27,466	—3,422	.....
1898,	4	38,228	+10,762	.....
1899,	4	44,852	+6,624	+13,964
SPIKES AND RIVETS.				
1896,	2	7,126	.....	.....
1897,	2	4,416	—2,710	.....
1898,	2	6,544	+2,128	.....
1899,	2	6,266	—278	—860
WIRE NAILS.				
1896,	3	16,744	.....	.....
1897,	3	39,781	+23,037	.....
1898,	3	27,114	—12,667	.....
1899,	3	31,660	+4,546	+14,916

PRODUCTION IN TONS OR QUANTITY—Continued.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Total production in ton, or given quantity.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
TACKS AND SMALL NAILS.				
		Tons.		
1896,	4	1,357	.....	.....
1897,	4	1,474	+117	.....
1898,	4	1,243	—231	.....
1899,	4	2,287	+1,044	+930
WIRE.				
1896,	6	3,683	.....	.....
1897,	6	4,048	+365	.....
1898,	6	4,434	+386	.....
1899,	6	4,930	+496	+1,247
WIRE ROPE.				
1896,	2	3,406	.....	.....
1897,	2	3,420	+14	.....
1898,	2	3,749	+329	.....
1899,	2	4,880	+1,131	+1,474
CARRIAGE AND WAGON SPRINGS.				
1896,	2	597	.....	.....
1897,	2	563	—34	.....
1898,	2	594	+31	.....
1899,	2	690	+96	+93
WROUGHT IRON PIPE AND TUBES.				
1896,	5	281,068	.....	.....
1897,	5	297,601	+16,533	.....
1898,	5	358,304	+60,703	.....
1899,	5	452,513	+94,209	+171,445

PRODUCTION IN TONS OR QUANTITY—Continued.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total pro- duction in ton, or given quantity.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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CAST IRON PIPE.

		Tons.		
1896,	3	50,730
1897,	3	72,030	+21,300
1898,	3	79,212	+7,182
1899,	3	61,344	—17,868	+10,614

IRON AND STEEL BRIDGES.

1896,	8	58,396	.....	.....
1897,	8	54,013	—4,383	.....
1898,	8	73,781	+19,768	.....
1899,	8	81,970	+8,189	+23,574

IRON CHAINS.

1896,	5	4,877	.....	.....
1897,	5	4,898	+21	.....
1898,	5	6,307	+1,409	.....
1899,	5	6,745	+438	+1,868

PAPER MANUFACTORIES.

1896,	8	63,953	.....	.....
1897,	8	59,852	—4,101	.....
1898,	8	55,014	—4,838	.....
1899,	8	67,929	+12,915	+3,976

PRODUCTION IN TONS OR QUANTITY—Continued.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Total production in ton, or quantity.	Increase (+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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WALL PAPER.

Rolls.

1896,	5	24,002,000
1897,	5	29,248,793	+5,246,793
1898,	5	34,867,977	+5,619,184
1899,	5	33,438,252	—1,429,725	+9,436,252

CIGARS.

Cigars.

1896,	48	318,325,191	.....	.....
1897,	48	374,065,636	+55,740,445	.....
1898,	48	372,624,428	—1,441,208	.....
1899,	48	406,911,898	+34,287,470	+88,586,700

PAVING BRICK.

Bricks.

1896,	9	40,969,988	.....	.....
1897,	9	46,102,186	+5,132,198	.....
1898,	9	49,462,959	+3,360,773	.....
1899,	9	64,848,987	+15,386,028	+23,878,999

BUILDING BRICK.

1896,	36	225,172,191	.....	.....
1897,	36	215,565,868	—9,606,323	.....
1898,	36	239,356,927	+23,791,059	.....
1899,	36	239,069,295	—287,632	+13,897,100

PRODUCTION IN TONS OR QUANTITY—Continued.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total pro- duction in given ton, or quantity.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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FIRE BRICK.

		Tons.		
1896,	18	329,925
1897,	18	330,914	+989
1898,	18	408,796	+77,882
1899,	18	538,099	+129,303	+208,174

SLATE ROOFING, ETC., TON-
NAGE.

1896,	7	36,977	.....	.....
1897,	7	45,860	+8,883	.....
1898,	7	39,745	—6,115	.....
1899,	7	38,196	—1,549	+1,219

SLATE ROOFING, ETC.,
SQUARES.

		Squares.		
1896,	16	203,147	.....	.....
1897,	16	244,761	+41,614	.....
1898,	16	291,593	+46,832	.....
1899,	16	301,456	+9,863	+98,309

GLAZED AND CHROME KID.

		Dozens.		
1896,	7	887,242	.....	.....
1897,	7	1,139,807	+252,565	.....
1898,	7	1,332,785	+192,978	.....
1899,	7	1,688,109	+355,324	+800,867

PRODUCTION IN TONS OR QUANTITY—Continued.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total pro- duction in given ton, or quantity.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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MEN'S, WOMEN'S, MISSES' AND
CHILDREN'S SHOES.

		Pairs.		
1896,	18	4,136,243
1897,	18	4,610,460	+474,217
1898,	18	4,705,019	+94,559	.....
1899,	18	5,037,680	+332,661	+901,437

SUSPENDERS.

		Dozens.		
1896,	2	142,000	.....	.....
1897,	2	152,000	+10,000	.....
1898,	2	165,000	+13,000	.....
1899,	2	180,500	+15,500	+38,500

HATS AND CAPS.

1896,	3	65,867	.....	.....
1897,	3	103,934	+38,067	.....
1898,	3	100,663	—3,271	.....
1899,	3	96,229	—4,434	+30,362

FUR AND FELT HATS.

1896,	5	47,026	.....	.....
1897,	5	51,025	+3,999	.....
1898,	5	55,925	+4,900	.....
1899,	5	64,127	+8,202	+17,101

PRODUCTION IN TONS OR QUANTITY—Continued.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS. FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Total production in given ton, or quantity.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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WOOL HATS.

		Dozens.		
1896,	7	171,988
1897,	7	195,956	+23,968
1898,	7	201,718	+5,762
1899,	7	208,122	+6,404	+36,134

UMBRELLAS AND PARASOLS.

		Pieces.		
1896,	6	1,034,234	.....	.....
1897,	6	1,095,602	+61,368	.....
1898,	6	1,040,256	—55,346	.....
1899,	6	1,067,840	+27,584	+33,606

SHIRTS AND SHIRT WAISTS.

		Dozens.		
1896,	10	222,201	.....	.....
1897,	10	195,076	—27,125	.....
1898,	10	341,436	+146,360	.....
1899,	10	400,296	+58,860	+178,095

CARPETS.

		Yards.		
1896,	20	10,752,952	.....	.....
1897,	20	13,612,975	+2,860,023	.....
1898,	20	12,904,587	—708,388	.....
1899,	20	15,648,813	+2,744,226	+4,895,861

PRODUCTION IN TONS OR QUANTITY—Continued.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of es- tablish- ments consid- ered.	Total pro- duction in given ton, or quantity.	Increase(+) or decrease (—) as com- pared with the preced- ing year.	Increase (+) or de- crease(—) 1899 as compared with 1896.
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WOOLEN AND WORSTED YARNS.

		Pounds.		
1896,	13	11,958,353
1897,	13	14,075,749	+2,117,396
1898,	13	10,089,876	—3,985,873	.....
1899,	13	10,413,714	+323,838	—1,544,639

CARPET YARNS.

1896,	12	11,668,000	.....	.....
1897,	12	14,722,000	+3,054,000	.....
1898,	12	12,171,606	—2,550,394	.....
1899,	12	16,111,761	+3,940,155	+4,443,761

COTTON YARNS.

1896,	8	7,953,685	.....	.....
1897,	8	8,552,212	+598,527	.....
1898,	8	9,548,201	+995,989	.....
1899,	8	9,758,165	+209,964	+1,804,480

WORSTED YARNS.

1896,	9	3,199,520	.....	.....
1897,	9	4,558,425	+1,358,905	.....
1898,	9	3,635,654	—922,771	.....
1899,	9	5,420,310	+1,784,656	+2,220,790

PRODUCTION IN TONS OR QUANTITY—Continued.

COMPARISON OF AGGREGATE TOTAL PRODUCTION, IN TONS, OR GIVEN QUANTITY—SAME ESTABLISHMENTS, FOR THE YEARS 1896, 1897, 1898 AND 1899.

Character of Industry and Years.	Number of establishments considered.	Total production in given ton, or quantity.	Increase(+) or decrease (—) as compared with the preceding year.	Increase (+) or decrease (—) 1899 as compared with 1896.
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COTTON AND WOOLEN YARNS.

		Pounds.		
1896,	5	4,088,190
1897,	5	4,415,906	+327,716
1898,	5	4,301,128	—114,778
1899,	5	3,741,956	—559,172	—346,234

HOSIERY.

		Dozens.		
1896,	33	4,722,215	.....	.....
1897,	33	5,639,213	+916,998	.....
1898,	33	5,426,594	—212,619	.....
1899,	33	6,213,329	+786,735	+1,491,114

SILK—BROAD GOODS AND RIBBONS.

		Yards.		
1896,	3	2,626,571	.....	.....
1897,	3	3,910,794	+1,284,223	.....
1898,	3	4,235,463	+324,669	.....
1899,	3	5,668,697	+1,433,234	+3,042,126

SILK—RIBBONS.

1896,	4	10,319,945	.....	.....
1897,	4	9,934,072	—385,873	.....
1898,	4	13,346,776	+3,412,704	.....
1899,	4	15,984,362	+2,637,586	+5,664,417

YEAR 1896.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
1.	Steel castings,	7	\$5,744,982	\$418,609	290	1,016
2.	Steel billets, slabs, blooms, etc.,	4	13,137,175	5,724,832	204	1,392
3.	Tool steel,	2	430,000	143,347	267	150
4.	Iron and steel specialties,	3	138,950	41,161	297	139
5.	Iron and steel forgings,	7	431,000	141,286	256	254
6.	Iron specialties,	2	35,000	47,113	301	37
7.	Malleable iron,	4	440,000	590,308	292	1,575
8.	Bolts, nuts, etc.,	8	1,885,950	600,739	235	942
9.	Spikes and rivets,	2	125,000	109,498	279	46
10.	Wire nails,	2	905,000	417,134	236	459
11.	Tacks and small nails,	4	163,500	48,253	226	118
12.	Wire,	6	515,100	147,605	289	132
13.	Wire rope,	2	690,000	292,275	302	158
14.	Wire goods,	4	75,950	20,611	290	80
15.	Wagon and carriage axles, ...	4	469,475	140,166	252	310
16.	Carriage and wagon springs, ..	2	125,000	30,822	271	43
17.	Scales, etc.,	5	168,500	83,428	278	120
18.	Stoves, heaters, ranges, etc., ...	39	5,544,712	862,626	209	3,532
19.	Bath boilers, tanks, etc.,	2	52,820	33,394	309	26
20.	Hardware specialties,	14	2,077,418	637,416	260	2,509
21.	Edge tools,	12	1,675,197	453,478	246	818
22.	Wrenches, picks, etc.,	5	564,000	118,234	240	248
23.	Locomotives and cars built and repaired,	3	1,464,400	3,783,754	273	6,254
24.	Wrought iron pipe and tubes, ..	5	13,555,000	7,973,945	283	5,324
25.	Cast iron pipe,	3	340,000	573,580	303	507
26.	Brass, copper and bronze goods,	20	2,228,192	1,202,796	296	1,308
27.	Iron and steel bridges,	8	961,050	2,008,501	294	1,169
28.	Locomotives, stationary engines, etc.,	9	11,222,730	4,229,510	306	5,587
29.	Engines, boilers, etc.,	10	3,908,988	1,557,093	295	1,922
30.	Cars, springs, axles and railway supplies,	11	6,310,325	2,270,778	260	2,240
31.	Iron vessels and engines,	3	7,039,973	1,923,035	306	4,044
32.	Boilers, tanks, stacks, etc., ..	21	1,544,562	761,415	286	1,161
33.	Machinery,	21	8,798,408	1,741,304	301	3,721

YEAR 1898.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid.	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$463,012	\$1,496,055	\$1,472 49	\$455,72	\$1 57	27.9	30.9	17,362 tons.	1
621,985	7,149,210	5,135 93	446 83	2 19	50.0	8.7	429,553	2
84,943	386,601	2,577 74	566 31	2 12	37.1	21.9	991	3
51,102	239,897	1,725 88	367 64	1 24	17.2	21.3	1,095	4
121,567	366,163	1,047 89	478 61	1 87	38.6	33.2	4,110	5
17,700	77,966	2,107 19	478 38	1 59	69.4	22.8	1,209	6
709,933	1,933,107	1,227 37	450 75	1 54	30.5	36.7	30,888	7
361,981	1,269,206	1,347 46	384 27	1 64	47.3	28.5	.....	8
19,883	173,719	3,777 15	432 24	1 54	63.0	11.4	7,126	9
140,100	758,704	1,652 95	305 23	1 29	55.0	18.5	16,744	10
34,122	115,719	980 92	289 18	1 28	41.7	29.5	1,357	11
60,328	284,418	2,154 68	457 03	1 58	51.9	21.2	3,683	12
70,108	615,004	3,892 43	443 72	1 47	47.5	11.4	3,406	13
20,708	67,040	838 00	258 85	89	30.7	30.9	.....	14
136,138	471,440	1,520 77	471 41	1 87	29.7	31.0	.....	15
24,877	73,042	1,698 65	578 07	2 22	42.2	34.0	597	16
69,550	242,692	2,022 43	579 58	2 08	34.4	28.7	.....	17
1,663,392	4,205,044	1,190 57	470 95	2 25	20.5	39.6	.....	18
12,091	61,186	2,352 31	465 04	1 50	54.6	19.8	.....	19
1,004,650	2,282,624	940 63	400 42	1 54	26.8	42.2	.....	20
356,401	1,083,068	1,324 04	435 70	1 77	41.9	32.9	.....	21
106,369	363,054	1,463 93	428 91	1 79	32.5	29.3	.....	22
3,035,897	6,983,962	1,116 72	485 43	1 78	54.2	43.4	.....	23
2,170,658	11,907,420	2,236 56	497 72	1 44	66.9	18.2	281,068	24
209,338	862,648	1,701 48	412 89	1 37	66.5	24.3	50,730	25
560,714	2,395,728	1,831 60	428 60	1 45	50.2	23.4	.....	26
596,051	3,429,130	2,933 39	504 77	1 72	58.5	17.2	58,396	27
3,137,295	8,792,061	1,573 66	561 53	1 84	48.1	35.6	.....	28
1,003,538	3,230,705	1,680 91	522 13	1 77	48.2	31.6	.....	29
971,616	4,603,466	2,055 12	433 75	1 67	49.3	21.1	.....	30
2,320,747	4,991,255	1,234 24	573 87	1 88	33.5	46.5	.....	31
542,277	1,951,211	1,680 63	467 08	1 63	39.0	27.8	.....	32
1,955,967	5,397,999	1,450 69	525 65	1 75	32.4	36.2	.....	33

YEAR 1896.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
34.	Foundries and machine shops, .	25	\$3,041,550	\$875,986	286	2,127
35.	Files, etc.,	2	510,000	95,440	275	331
36.	Saws,	3	310,000	37,000	229	56
37.	Plumber supplies,	3	2,105,078	*	281	960
38.	Electrical supplies,	4	12,815,696	1,337,362	289	2,528
39.	Shovels, spades, scoops, etc., .	8	651,100	313,871	210	545
40.	Safes and vault doors,	2	80,000	66,274	307	128
41.	Ornamental metal work,	2	300,000	178,406	302	282
42.	Metal and metallic goods,	3	280,400	47,136	234	194
43.	Building and structural iron work,	2	823,000	522,584	301	752
44.	Iron chains,	5	253,542	127,022	264	231
45.	Iron fences and railing,	7	40,500	47,937	293	79
46.	Agricultural implements	13	2,205,000	1,055,157	285	1,415
47.	Steam pumps,	2	280,000	146,725	307	153
48.	Bicycles,	4	300,000	456,736	274	305
49.	Planos and organs,	3	201,000	79,456	296	163
50.	Tinware,	5	372,700	218,233	301	284
51.	Paper manufactories,	8	4,257,961	1,583,061	262	1,521
52.	Wall paper,	5	460,000	545,913	238	482
53.	Cigars,	48	2,940,477	2,827,367	287	6,748
54.	Book binding,	3	125,000	62,699	301	138
55.	Cordage, rope and twine,	6	3,265,000	3,369,846	288	2,063
56.	Paper, paper boxes, envelopes, etc.,	27	1,491,067	936,025	297	1,826
57.	Pottery,	3	535,000	73,655	283	221
58.	Paving brick,	9	571,200	40,586	246	515
59.	Building brick,	36	3,633,200	174,712	227	1,969
60.	Fire brick,	18	2,240,600	423,138	283	1,868
61.	Slate roofing etc., tonnage,	7	221,451	32,540	234	934
62.	Slate roofing, etc., squares, ...	16	726,916	64,217	240	1,368
63.	Window glass, bottles and table goods,	24	14,014,300	1,739,748	242	7,890
64.	Glazed and chrome kid,	7	3,857,983	5,635,016	299	2,725
65.	Men's, women's, misses and children's shoes,	18	2,502,618	3,221,658	280	3,815
66.	Suspenders,	2	82,000	200,936	295	110
67.	Hats and caps,	3	273,592	281,490	284	490

*Incomplete returns of value of basic material.

YEAR 1896.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid.	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$957,628	\$2,643,208	\$1,242 69	\$450 22	\$1 57	33.1	36.2	.....	34
108,895	321,222	970 46	328 99	1 20	29.7	33.9	.....	35
25,745	88,186	1,574 75	459 73	2 01	42.0	29.2	.....	36
418,864	1,078,000	1,122 92	436 32	1 55	....	38.9	.....	37
1,276,087	3,653,461	1,445 20	504 78	1 75	26.6	34.9	.....	38
217,581	813,573	1,492 80	399 23	1 90	38.6	26.8	.....	39
54,556	151,546	1,183 95	426 22	1 39	43.7	36.0	.....	40
177,921	413,938	1,577 79	630 93	2 09	10.2	40.1	.....	41
58,892	161,989	834 99	303 56	1 29	29.1	36.3	.....	42
382,148	1,195,156	1,589 30	508 18	1 60	43.8	22.0	.....	43
91,526	331,059	1,433 15	396 22	1 50	38.4	27.7	4,887 tons.	44
37,512	119,501	1,512 67	474 84	1 62	40.1	31.4	.....	45
622,390	2,351,507	1,661 84	439 85	1 54	44.9	26.5	.....	46
121,368	334,056	2,183 31	793 26	2 58	43.9	36.3	.....	47
159,578	832,698	2,730 00	523 21	1 91	54.8	19.2	.....	48
84,706	220,647	1,353 66	519 67	1 76	36.0	38.4	.....	49
107,539	477,000	1,679 57	373 66	1 26	45.8	22.5	.....	50
580,874	3,370,998	2,216 30	381 90	1 46	47.0	17.2	63,953	51
156,668	1,044,811	2,167 66	323 79	1 26	52.3	14.9	24,002,000 rolls.	52
1,910,906	7,504,119	1,112 05	283 18	99	37.8	25.5	318,325,191 cigars.	53
64,957	197,856	1,216 35	470 70	1 56	37.3	38.7	.....	54
621,413	4,753,024	2,323 33	302 10	1 04	70.3	12.9	.....	55
494,654	2,009,846	1,100 68	270 89	91	46.6	24.1	.....	56
100,562	254,732	1,152 63	455 03	1 61	28.9	39.5	.....	57
164,710	384,378	716 36	319 33	1 30	10.6	42.9	40,969,988 bricks.	58
667,350	1,575,412	800 12	338 93	1 49	11.1	42.4	225,172,191 bricks.	59
727,162	1,639,926	877 90	389 26	1 37	25.8	44.3	329,925 tons.	60
284,706	430,376	460 79	304 82	1 30	7.6	66.2	36,977 tons.	61
431,365	660,321	482 09	315 33	1 31	9.7	65.3	203,147 squares.	62
2,948,608	6,546,509	\$29 72	373 71	1 54	26.6	45.0	.....	63
962,342	8,049,657	2,954 00	353 15	1 18	70.0	11.9	887,242 dozens.	64
1,292,042	5,638,377	1,477 95	338 67	1 21	57.1	22.9	4,136,243 pairs.	65
30,936	319,100	2,900 91	281 24	95	63.0	9.7	142,000 dozens.	66
121,166	525,607	1,285 19	296 23	1 22	54.1	23.1	65,867 dozens.	67

YEAR 1896.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
68.	Fur and felt hats,	5	\$2,773,726	\$443,621	309	963
69.	Wool hats,	7	338,979	270,432	274	395
70.	Umbrellas and parasols,	6	450,435	815,202	307	688
71.	Dress trimmings, braids, etc.,	8	1,158,296	536,719	287	1,104
72.	Shirts and shirt waists,	10	911,300	996,847	284	1,854
73.	Neckwear,	3	135,000	217,642	308	190
74.	Cotton and woolen cloths,	26	3,393,847	2,980,495	269	4,560
75.	Carpets,	20	3,390,625	2,332,148	263	2,486
76.	Cotton goods,	19	3,077,649	1,634,827	259	3,146
77.	Woolen and worsted cassimeres,	11	1,297,633	1,034,784	270	1,373
78.	Woolen and worsted fabrics, ..	17	2,994,836	2,093,613	248	2,817
79.	Woolen and worsted yarns, ...	13	3,169,270	1,953,445	251	1,721
80.	Rugs, yarns, etc.,	6	5,996,733	2,176,255	256	3,428
81.	Carpet yarns,	12	998,500	889,240	264	595
82.	Cotton yarns,	8	1,300,209	778,744	263	720
83.	Worsted yarns,	9	2,015,617	1,338,892	230	1,406
84.	Cotton and woolen yarns,	5	883,000	487,965	269	637
85.	Woolen blankets, flannels, etc., ..	5	669,730	620,465	304	717
86.	Lace goods,	3	741,000	190,499	274	763
87.	Chenille goods,	3	470,000	297,395	279	610
88.	Upholstery goods,	10	1,867,322	1,427,820	294	1,938
89.	Knit goods, underwear,	15	1,820,600	1,881,765	272	2,469
90.	Hosiery,	33	2,132,318	1,684,783	257	5,040
91.	Silk—Broad goods, thrown silk, yarns, etc.,	7	1,874,700	2,441,078	269	2,494
92.	Silk—Broad goods and ribbons, ..	3	1,675,000	732,000	301	1,376
93.	Silk—Ribbons,	4	311,882	309,883	208	431
Totals and averages,		855	\$205,383,913	\$96,459,277	268	126,578

YEAR 1896.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid.	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. terial to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$385,170	\$1,447,818	\$1,503 45	\$399 97	\$1 30	30.6	26.6	47,026 dozens.	63
125,792	521,966	1,321 43	318 46	1 16	51.8	24.1	171,988 dozens.	69
167,380	1,362,314	1,980 11	243 29	79	59.8	12.3	1,034,234 pieces.	70
299,046	1,218,500	1,103 71	270 87	94	44.0	24.5	.....	71
538,454	2,128,737	1,153 58	290 43	1 02	46.6	25.2	222,201 dozens.	72
72,910	381,745	2,009 18	383 74	1 25	57.0	19.1	.....	73
1,446,144	5,571,616	1,221 84	317 14	1 18	53.5	25.9	.....	74
868,200	3,977,283	1,599 87	349 23	1 33	58.6	21.8	10,752,952 yards.	75
891,261	3,074,012	977 12	283 30	1 09	53.2	29.0	.....	76
419,961	1,970,251	1,435 00	305 88	1 13	52.5	21.3	.....	77
796,935	3,921,846	1,392 21	282 90	1 14	53.4	20.3	.....	78
480,490	2,969,351	1,725 31	279 18	1 11	65.8	16.2	11,958,353 pounds.	79
1,053,507	4,401,046	1,283 85	318 98	1 25	49.4	24.8	.....	80
201,553	1,295,455	2,177 24	338 74	1 28	68.6	15.6	11,668,000 pounds.	81
194,570	1,166,180	1,619 70	270 24	1 03	66.8	16.7	7,953,685 pounds.	82
275,736	2,263,571	1,609 94	267 24	1 12	59.1	16.6	3,199,520 pounds.	83
189,018	832,459	1,306 84	296 73	1 10	58.6	22.7	4,088,190 pounds.	84
257,057	1,282,412	1,788 58	358 52	1 18	48.4	20.0	.....	85
193,765	909,289	1,191 73	253 95	93	20.9	21.3	.....	86
138,438	502,678	824 06	226 95	81	59.2	27.5	.....	87
674,424	2,674,368	1,379 96	348 00	1 18	53.4	25.2	.....	88
651,727	3,173,444	1,285 32	263 96	57	59.3	20.5	.....	89
1,195,059	3,924,458	778 66	237 11	92	42.9	30.5	4,722,215 dozens.	90
628,964	3,643,308	1,460 83	252 20	94	67.0	17.3	.....	91
340,255	1,510,181	1,097 52	247 28	82	27.8	12.9	2,626,571 yards.	92
125,802	705,120	1,636,01	291 88	98	43.9	17.8	10,319,945 yards.	93
\$51,873,453	\$195,205,164	\$1,542 17	\$409 81	\$1 53	49.4	26.6	.....

YEAR 1897.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
1.	Steel castings,	7	\$5,316,197	\$402,115	310	1,063
2.	Steel billets, slabs, blooms, etc.,	4	13,218,900	7,363,930	291	1,278
3.	Tool steel,	2	558,000	72,338	250	149
4.	Iron and steel specialties,	3	141,000	44,507	285	152
5.	Iron and steel forgings,	7	430,000	122,710	281	244
6.	Iron specialties,	2	45,000	77,223	301	45
7.	Malleable iron,	4	493,925	455,890	292	1,404
8.	Bolts, nuts, etc.,	8	1,918,214	591,791	262	966
9.	Spikes and rivets,	2	135,000	99,564	284	51
10.	Wire nails,	2	905,000	792,350	247	599
11.	Tacks and small nails,	4	163,500	40,862	209	114
12.	Wire,	6	522,100	151,647	271	150
13.	Wire rope,	2	700,000	230,111	303	166
14.	Wire goods,	4	79,450	31,563	299	88
15.	Wagon and carriage axles, ...	4	469,475	145,815	278	313
16.	Carriage and wagon springs, ..	2	125,000	22,096	260	40
17.	Scales, etc.,	5	173,500	88,826	287	131
18.	Stoves, heaters, ranges, etc., ..	39	5,607,709	860,896	228	3,628
19.	Bath boilers, tanks, etc.,	2	54,000	31,163	305	28
20.	Hardware specialties,	14	3,246,189	668,089	270	2,643
21.	Edge tools,	12	1,613,064	223,034	227	827
22.	Wrenches, picks, etc.,	5	571,000	152,785	266	293
23.	Locomotives and cars built and repaired,	3	1,464,400	3,276,309	282	5,742
24.	Wrought iron pipe and tubes, ..	5	13,505,000	7,101,673	298	5,110
25.	Cast iron pipe,	3	613,059	767,967	302	615
26.	Brass, copper and bronze goods,	20	2,220,192	1,173,538	295	1,266
27.	Iron and steel bridges,	8	961,050	1,731,721	298	1,177
28.	Locomotives, stationary engines, etc.,	9	11,643,157	3,933,971	306	5,651
29.	Engines, boilers, etc.,	10	3,924,988	1,325,287	294	1,690
30.	Cars, springs, axles and railway supplies,	11	5,840,116	1,938,862	280	2,306
31.	Iron vessels and engines,	3	7,274,993	2,020,859	305	3,447
32.	Boilers, tanks, stacks, etc., ..	21	1,624,265	863,908	285	1,128
33.	Machinery,	21	8,921,924	1,698,519	309	3,853

YEAR 1897.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid.	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$478,308	\$1,391,020	\$1,302 45	\$447 85	\$1 44	28.9	34.4	18,313 tons.	1
630,474	10,511,188	8,224 72	493 33	1 70	70.0	6.0	674,744 tons.	2
72,164	243,469	1,634 02	484 32	1 94	29.7	29.6	528 tons.	3
51,096	225,244	1,485 16	342 08	1 20	19.7	23.0	1,115 tons.	4
126,823	315,364	1,292 28	495 18	1 76	38.9	38.3	3,533 tons.	5
22,700	119,167	2,618 16	564 44	1 68	64.8	19.1	2,510 tons.	6
647,074	1,627,267	1,159 02	160 86	1 58	28.0	39.8	27,466 tons.	7
308,826	1,221,990	1,265 00	318 97	1 22	48.4	25.2	.....	8
18,219	159,216	3,122 47	377 24	1 26	62.5	11.4	4,416 tons.	9
230,387	1,376,116	2,247 27	384 62	1 56	58.9	17 1	39,781 tons.	10
31,752	167,112	939 58	278 53	1 33	38.1	29.6	1,474 tons.	11
66,682	300,614	2,004 09	404 55	1 49	50.4	20.2	4,048 tons.	12
74,810	596,192	3,591 52	450 67	1 49	38.6	12.5	3,420 tons.	13
27,354	99,311	1,128 53	310 84	1 04	31.8	27.5	.....	14
158,359	491,920	1,571 63	505 84	1 82	29.6	32.2	.....	15
20,799	62,864	1,571 60	519 98	2 00	35.1	33.1	563 tons.	16
74,385	263,089	2,068 31	567 82	1 98	23.8	28.3	.....	17
1,683,743	4,267,423	1,623 83	464 10	2 04	20.2	39.5	.....	18
12,498	63,699	2,274 97	446 36	1 46	48.9	19.6	.....	19
1,053,746	2,686,482	1,016 45	398 69	1 48	24.9	38.2	.....	20
304,988	781,832	945 38	368 79	1 62	28.5	39.0	.....	21
123,034	462,043	1,576 94	419 91	1 58	33.0	26.6	.....	22
3,019,356	6,534,498	1,138 02	525 84	1 86	50.2	46.2	.....	23
2,045,620	11,341,565	2,219 49	400 32	1 34	62.6	18.0	297,601 tons.	24
250,934	1,184,240	1,925 59	408 02	1 35	64.8	21.2	72,030 tons.	25
535,753	2,117,765	1,672 80	423 19	1 44	55.4	25.3	.....	26
564,817	3,115,371	2,646 87	479 88	1 61	55.6	18.1	54,013 tons.	27
3,032,837	8,531,117	1,509 67	536 69	1 75	46.1	35.6	.....	28
840,896	2,658,616	1,573 15	497 57	1 69	49.9	31.6	.....	29
928,180	4,359,164	1,890 35	402 51	1 44	44.5	21.3	.....	30
1,881,993	4,588,448	1,331 14	545 98	1 79	44.0	41.0	.....	31
535,025	1,904,346	1,688 25	474 32	1 66	45.4	28.1	.....	32
1,970,570	5,451,809	1,414 95	511 44	1 66	31.2	36.1	.....	33

YEAR 1897.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
34.	Foundries and machine shops, .	25	\$3,062,486	\$1,049,859	295	2,101
35.	Files, etc.,	2	510,000	92,201	266	346
36.	Saws,	3	335,000	26,812	210	50
37.	Plumber supplies,	3	2,043,751	*	269	921
38.	Electrical supplies,	4	12,848,743	1,365,199	297	2,173
39.	Shovels, spades, scoops, etc., .	8	651,100	276,019	219	511
40.	Safes and vault doors,	2	68,000	63,173	301	125
41.	Ornamental metal work,	3	336,000	178,204	295	273
42.	Metal and metallic goods,	1	280,400	50,060	258	207
43.	Building and structural iron work,	2	823,000	686,899	302	662
44.	Iron chains,	5	258,542	126,244	272	231
45.	Iron fences and railing,	7	42,500	58,623	298	100
46.	Agricultural implements	13	2,207,000	1,053,199	293	1,424
47.	Steam pumps,	2	376,974	127,524	307	140
48.	Bicycles,	4	353,000	555,666	280	335
49.	Pianos and organs,	3	201,000	83,973	306	152
50.	Tinware,	5	374,000	216,243	301	275
51.	Paper manufactories,	8	4,425,013	1,451,820	277	1,474
52.	Wall paper,	5	545,500	639,158	266	501
53.	Cigars,	48	3,150,250	3,363,965	291	7,481
54.	Book binding,	3	126,500	62,018	280	137
55.	Cordage, rope and twine,	6	3,265,000	3,491,548	317	2,129
56.	Paper, paper boxes, envelopes, etc.,	27	1,504,284	967,556	301	1,911
57.	Pottery,	3	585,000	72,400	279	225
58.	Paving brick,	9	611,500	32,756	244	507
59.	Building brick,	26	3,663,847	170,443	225	1,882
60.	Fire brick,	18	2,421,783	382,434	281	1,928
61.	Slate roofing etc., tonnage,	7	1,241,800	40,436	230	910
62.	Slate roofing, etc., squares, ...	16	728,914	72,911	240	1,458
63.	Window glass, bottles and table goods,	24	14,029,382	1,868,578	263	7,964
64.	Glazed and chrome kid,	7	4,068,915	7,036,904	301	3,255
65.	Men's, women's, misses and children's shoes,	18	2,615,705	3,553,381	291	4,032
66.	Suspenders,	2	92,000	233,500	463	120
67.	Hats and caps,	3	307,789	418,877	289	489

*Incomplete returns of value of basic material.

YEAR 1897.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid.	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$995,718	\$2,965,528	\$1,411 48	\$473 93	\$1 61	35.4	33.6	.....	34
110,805	329,533	952 40	320 24	1 20	28.0	33.6	.....	35
21,557	71,437	1,428 75	431 14	2 05	37.5	30.2	.....	36
377,194	962,000	1,044 52	409 55	1 52	....	39.2	.....	37
1,184,647	3,463,804	1,594 02	545 17	1 84	39.4	34.2	.....	38
202,067	803,048	1,571 52	395 43	1 81	34.4	25.2	.....	39
59,906	157,476	1,259 81	479 25	1 59	40.1	38.0	.....	40
158,948	420,546	1,540 46	582 23	1 97	42.4	37.8	.....	41
65,704	184,101	889 37	317 41	1 23	27.2	35.7	.....	42
344,442	1,249,288	1,887 14	520 31	1 72	55.0	27.6	.....	43
96,471	526,049	1,456 06	418 49	1 54	37.6	28.8	4,898 tons.	44
48,923	145,641	1,456 41	483 23	1 64	40.3	33.6	.....	45
625,572	2,527,451	1,774 89	439 31	1 50	41.7	24.7	.....	46
103,105	249,488	1,782 06	736 46	2 40	51.1	41.3	.....	47
192,089	788,628	2,354 11	573 43	2 05	70.4	24.4	.....	48
74,853	213,924	1,407 39	492 45	1 61	3.93	35.0	.....	49
106,907	467,000	1,698 18	388 75	1 29	46.3	22.9	.....	50
588,144	3,310,376	2,245 85	399 01	1 44	43.9	17.8	59,852 tons.	51
169,043	1,238,000	2,471 06	337 41	1 27	51.6	13.7	29,248,793 rolls.	52
2,128,366	8,455,542	1,130 27	284 50	98	39.8	25.2	374,065,636 cigars.	53
66,378	162,373	1,185 20	484 51	1 73	38.2	40.9	.....	54
687,023	4,729,813	2,221 61	322 70	1 02	73.8	14.5	.....	55
511,220	2,049,073	1,072 25	267 51	89	47.2	24.9	.....	56
96,771	243,197	1,088 88	430 09	1 54	29.8	39.8	.....	57
168,302	405,820	800 43	331 96	1 36	8.7	41.5	46,102,186 bricks.	58
601,860	1,551,049	824 15	351 68	1 56	11.0	42.7	215,565,868 brlcks.	59
719,308	1,570,074	814 35	373 08	1 33	24.4	45.8	330,914 tons.	60
296,492	553,070	607 78	325 82	1 42	7.3	53.6	45,860 tons.	61
475,599	791,086	542 58	326 20	1 36	9.2	60.1	244,761 squares.	62
3,274,694	7,461,967	936 96	411 19	1 56	25.0	43.9	.....	63
1,285,138	10,649,292	3,271 67	394 82	1 31	66.8	12.7	1,139,807 dozens.	64
1,410,546	6,030,847	1,495 75	352 32	1 21	58.9	23.4	4,610,460 pairs.	65
33,936	319,100	2,690 17	282 80	70	66.9	9.7	152,000 dozens.	66
179,326	782,060	1,599 30	366 74	1 27	52.9	22.9	103,934 dozens.	67

YEAR 1897.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
68.	Fur and felt hats,	5	\$2,782,743	\$476,658	308	1,048
69.	Wool hats,	7	424,085	343,808	260	447
70.	Umbrellas and parasols,	6	437,000	\$65,091	307	667
71.	Dress trimmings, braids, etc.,	8	1,176,796	685,621	295	1,393
72.	Shirts and shirt waists,	10	913,300	988,269	297	1,869
73.	Neckwear,	3	135,000	200,833	306	174
74.	Cotton and woolen cloths,	26	3,519,446	3,874,071	287	4,863
75.	Carpets,	20	3,480,181	3,077,136	290	2,958
76.	Cotton goods,	19	3,135,764	1,711,664	278	3,208
77.	Woolen and worsted cassimeres,	11	1,339,549	1,449,509	277	1,572
78.	Woolen and worsted fabrics, ..	17	3,180,727	2,981,503	289	3,343
79.	Woolen and worsted yarns, ...	13	2,519,270	2,512,458	290	1,817
80.	Rugs, yarns, etc.,	6	5,579,779	2,174,431	273	3,369
81.	Carpet yarns,	12	1,012,575	1,326,068	295	657
82.	Cotton yarns,	8	1,302,175	775,158	277	759
83.	Worsted yarns,	9	2,124,920	2,059,975	289	1,823
84.	Cotton and woolen yarns,	5	978,015	528,826	291	696
85.	Woolen blankets, flannels, etc., ..	5	687,000	638,333	301	719
86.	Lace goods,	3	741,300	252,059	296	855
87.	Chenille goods,	3	470,000	329,695	300	668
88.	Upholstery goods,	10	1,875,721	1,498,449	299	2,059
89.	Knit goods, underwear,	15	1,868,000	2,085,804	289	2,705
90.	Hosiery,	33	2,291,951	2,174,574	289	5,847
91.	Silk—Broad goods, thrown silk, yarns, etc.,	7	1,924,700	3,397,403	301	3,643
92.	Silk—Broad goods and ribbons, ..	3	1,675,000	1,025,655	301	2,121
93.	Silk—Ribbons,	4	394,180	459,658	299	535
Totals and averages,		855	\$208,612,073	\$106,263,226	276	142,046

YEAR 1897.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid.	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$514,651	\$1,558,607	\$1,487 22	\$491 08	\$1 59	30.6	33.0	51,025 dozens.	68
142,074	649,061	1,452 04	320 08	1 23	53.0	22.0	195,956 dozens.	69
193,856	1,436,838	2,154 18	299 63	97	60.2	13.9	1,095,602 pieces.	70
380,240	1,471,696	1,056 49	272 97	93	46.6	25.8	.....	71
507,166	1,982,612	1,060 79	271 36	91	49.8	25.6	195,076 dozens.	72
62,988	353,886	2,032 83	362 00	1 18	56.5	17.8	.....	73
1,679,106	6,565,773	1,350 15	345 28	1 20	59.0	25.6	.....	74
1,693,072	5,026,839	1,699 40	369 53	1 27	61.2	21.7	13,612,975 yards.	75
1,005,644	3,366,182	1,049 31	313 48	1 13	50.8	29.9	.....	76
523,251	2,618,868	1,665 95	392 92	1 20	55.3	20.0	.....	77
1,054,229	5,323,713	1,592 49	315 36	1 09	56.0	19.8	.....	78
564,008	3,781,819	2,081 35	310 41	1 07	66.4	14.9	14,075,749 pounds.	79
1,072,563	4,406,440	1,307 94	318 36	1 17	49.1	24.4	.....	80
245,091	1,828,851	2,783 64	373 05	1 27	72.5	13.4	14,722,000 pounds.	81
213,940	1,184,831	1,561 04	281 87	2 02	65.4	18.1	8,552,212 pounds.	82
489,451	3,446,514	1,890 57	268 49	93	59.8	14.2	4,558,425 pounds.	83
218,632	990,280	1,422 82	314 13	1 08	52.4	22.1	4,415,906 pounds.	84
264,463	1,221,499	1,698 89	367 74	1 22	52.3	21.6	.....	85
223,436	1,086,945	1,271 28	261 23	88	23.2	20.6	.....	86
169,224	573,450	858 45	253 33	84	57.5	29.5	.....	87
765,506	2,864,002	1,390 97	371 79	1 24	52.3	26.7	.....	88
715,654	3,585,544	1,325 52	264 35	91	58.2	19.9	.....	89
1,435,854	4,680,827	800 55	245 57	85	46.5	30.7	5,639,213 dozens.	90
840,337	4,970,593	1,264 42	230 67	77	68.4	16.9	.....	91
492,634	2,414,705	1,138 47	232 26	77	42.5	20.4	3,910,794 yards.	92
187,491	895,892	1,674 56	350 45	1 17	51.4	20.9	9,934,072 yards.	93
\$54,395,315	\$213,063,519	\$1,500 10	\$382 94	\$1 39	49.9	25.5	.....

YEAR 1898.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
1.	Steel castings,	7	\$5,354,846	\$517,448	310	1,363
2.	Steel billets, slabs, blooms, etc.,	4	12,718,900	8,285,732	286	1,475
3.	Tool steel,	2	640,000	86,525	321	204
4.	Iron and steel specialties,	3	125,600	28,028	287	131
5.	Iron and steel forgings,	7	482,850	157,035	293	318
6.	Iron specialties,	2	45,000	45,879	301	35
7.	Malleable iron,	4	532,600	638,054	298	1,640
8.	Bolts, nuts, etc.,	8	1,957,776	713,906	274	1,010
9.	Spikes and rivets,	2	132,950	109,443	291	55
10.	Wire nails,	3	905,000	475,780	180	615
11.	Tacks and small nails,	4	123,500	35,049	248	68
12.	Wire,	6	555,600	192,883	311	167
13.	Wire rope,	2	700,000	248,135	303	190
14.	Wire goods,	4	80,050	37,195	303	107
15.	Wagon and carriage axles, ...	4	469,475	126,841	292	362
16.	Carriage and wagon springs, ..	2	135,000	20,082	269	41
17.	Scales, etc.,	5	178,500	92,725	299	144
18.	Stoves, heaters, ranges, etc., ..	39	5,680,161	885,939	237	3,712
19.	Bath boilers, tanks, etc.,	2	54,000	30,676	302	32
20.	Hardware specialties,	14	3,337,946	701,185	256	2,871
21.	Edge tools,	12	1,646,820	293,289	291	878
22.	Wrenches, picks, etc.,	5	571,000	143,063	283	272
23.	Locomotives and cars built and repaired,	3	1,442,800	4,191,152	296	5,965
24.	Wrought iron pipe and tubes, ..	5	13,505,000	8,285,486	303	5,693
25.	Cast iron pipe,	3	641,710	810,511	296	689
26.	Brass, copper and bronze goods,	20	2,228,450	1,435,795	298	1,447
27.	Iron and steel bridges,	8	961,050	2,126,144	302	1,423
28.	Locomotives, stationary engines, etc.,	9	12,118,787	5,386,109	305	7,967
29.	Engines, boilers, etc.,	10	3,930,783	1,514,153	304	1,904
30.	Cars, springs, axles and railway supplies,	11	5,872,258	2,757,366	295	3,130
31.	Iron vessels and engines,	3	7,262,275	2,997,076	304	5,384
32.	Boilers, tanks, stacks, etc., ..	21	1,656,210	1,172,463	291	1,386
33.	Machinery,	21	9,297,253	2,030,334	300	4,434

YEAR 1898.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$619,170	\$2,098,933	\$1,539 94	\$454 28	\$1 46	24.6	29.5	27,786 tons.	1
873,163	10,257,159	6,954 61	591 97	2 07	80.8	8.5	722,475 tons.	2
150,952	419,725	2,057 48	739 90	2 31	20.6	35.9	905 tons.	3
37,751	201,340	1,536 95	289 17	1 00	13.9	18.7	524 tons.	4
175,796	463,025	1,456 05	552 82	1 89	33.9	38.0	6,866 tons.	5
18,760	78,107	2,231 62	534 29	1 79	58.7	23.9	1,061 tons.	6
776,815	2,288,315	1,395 31	473 67	1 59	30.5	33.9	38,228 tons.	7
348,639	1,424,103	1,410 00	345 19	1 26	50.1	24.5	.....	8
19,724	190,000	3,454 54	358 62	1 23	57.6	10.4	6,544 tons.	9
167,475	908,291	1,476 90	272 32	1 51	52.4	18.4	27,114 tons.	10
24,483	94,162	1,384 73	360 04	1 45	37.2	26.0	1,243 tons.	11
79,565	367,860	2,202 75	478 83	1 54	52.4	22.0	4,334 tons.	12
88,858	655,466	3,449 82	467 67	1 54	37.9	13.6	3,749 tons.	13
27,923	147,568	1,379 14	260 96	86	25.2	18.9	.....	14
189,439	582,349	1,608 70	523 31	1 79	21.8	32.5	.....	15
21,078	63,456	1,547 71	514 09	1 91	31.6	32.2	594 tons.	16
81,860	276,978	1,923 46	568 47	1 90	33.5	29.6	.....	17
1,793,402	4,317,431	1,163 10	483 14	2 04	20.5	41.5	49,465 tons.	18
13,611	62,102	1,940 69	425 34	1 41	49.4	21.9	.....	19
1,127,879	2,823,993	983 62	392 28	1 53	24.8	39.9	.....	20
401,694	1,069,190	1,217 76	457 51	1 57	27.4	37.6	.....	21
139,125	494,658	1,816 39	511 49	1 88	29.0	28.1	.....	22
3,411,544	8,000,396	1,341 22	571 93	1 93	52.4	42.6	.....	23
2,451,501	14,552,862	2,556 27	430 62	1 42	56.9	16.9	358,304 tons.	24
263,550	1,260,038	1,823 79	382 51	1 29	64.3	20.1	79,212 tons.	25
641,481	2,661,226	1,864 91	449 53	1 51	54.0	24.1	.....	26
617,664	3,717,213	2,612 24	455 14	1 51	57.2	17.4	73,781 tons.	27
4,559,167	12,862,598	1,614 48	572 26	1 88	41.9	35.5	.....	28
996,882	3,088,737	1,622 24	523 57	1 72	49.0	32.3	.....	29
1,491,520	8,227,597	2,628 62	476 52	1 61	33.5	18.1	.....	30
2,880,847	6,635,431	1,232 44	535 08	1 76	45.2	43.4	.....	31
629,883	2,455,256	1,771 47	461 68	1 59	47.8	26.1	.....	32
2,402,330	6,500,975	1,466 16	541 79	1 81	31.2	37.0	.....	33

YEAR 1898.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
34.	Foundries and machine shops, .	25	\$3,161,069	\$1,263,302	296	2,447
35.	Files, etc.,	2	512,000	82,739	278	369
36.	Saws,	3	335,000	28,087	244	47
37.	Plumber supplies,	3	2,031,622	*	290	965
38.	Electrical supplies,	4	13,893,503	2,340,407	301	3,499
39.	Shovels, spades, scoops, etc., .	8	648,100	296,298	246	528
40.	Safes and vault doors,	2	68,000	65,984	298	121
41.	Ornamental metal work,	2	398,676	221,243	297	405
42.	Metal and metallic goods,	3	390,000	58,176	255	225
43.	Building and structural iron work,	2	823,000	1,241,336	307	841
44.	Iron chains,	5	264,542	165,742	298	269
45.	Iron fences and railing,	7	46,000	81,971	305	126
46.	Agricultural implements	13	2,243,000	1,211,977	300	1,599
47.	Steam pumps,	2	380,871	123,813	304	151
48.	Bicycles,	4	355,000	539,652	277	418
49.	Pianos and organs,	3	267,000	105,843	297	171
50.	Tinware,	5	374,000	217,433	300	278
51.	Paper manufactories,	8	4,771,595	1,486,541	283	1,483
52.	Wall paper,	5	560,500	754,409	274	527
53.	Cigars,	48	3,129,190	3,773,579	293	7,970
54.	Book binding,	3	130,000	65,522	283	156
55.	Cordage, rope and twine,	6	3,275,000	3,532,381	312	2,106
56.	Paper, paper boxes, envelopes, etc.,	27	1,489,559	1,044,300	302	2,472
57.	Pottery,	3	585,000	73,789	289	238
58.	Paving brick,	9	639,644	29,613	229	590
59.	Building brick,	36	3,716,886	175,355	217	1,930
60.	Fire brick,	18	2,556,283	418,484	243	2,327
61.	Slate roofing etc., tonnage,	7	1,222,007	37,321	248	852
62.	Slate roofing, etc., squares, ...	16	919,913	74,829	180	1,964
63.	Window glass, bottles and table goods,	24	14,182,329	1,844,725	276	8,572
64.	Glazed and chrome kid,	7	4,163,993	8,092,540	298	3,745
65.	Men's, women's, misses and children's shoes,	18	2,735,870	3,782,316	288	4,268
66.	Suspenders,	2	95,000	245,000	297	127
67.	Hats and caps,	3	296,776	377,205	286	560

*Incomplete returns of value of basic material.

YEAR 1898.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$1,184,333	\$3,571,600	\$1,459 58	\$483 99	\$1 63	35.4	33.2	.....	34
117,553	400,465	1,085 27	318 57	1 15	20.7	29.4	.....	35
22,939	76,338	1,624 21	188 06	2 00	36.8	30.0	.....	36
432,969	1,097,058	1,136 85	448 67	1 55	....	39.5	.....	37
1,929,920	6,821,374	1,949 52	551 56	1 83	34.3	28.3	.....	38
236,593	997,314	1,888 85	448 09	1 82	29.7	23.7	.....	39
61,012	153,085	1,265 17	504 23	1 69	43.1	39.9	.....	40
205,995	471,296	1,163 69	508 63	1 71	46.9	43.7	.....	41
74,084	207,496	922 20	329 26	1 29	28.0	35.7	.....	42
441,539	2,057,639	2,446 66	525 02	1 71	60.3	21.4	.....	43
120,291	409,304	1,521 58	447 18	1 50	40.5	29.4	6,307 tons.	44
57,197	187,059	1,484 60	453 94	1 49	43.8	30.6	.....	45
752,266	2,958,496	1,850 22	470 46	1 57	41.0	25.4	.....	46
112,032	313,511	2,076 23	741 93	2 44	39.5	35.7	.....	47
189,355	833,479	1,993 97	453 00	1 62	64.7	22.7	.....	48
86,499	251,421	1,470 30	505 34	1 70	42.1	34.4	.....	49
103,119	469,200	1,687 77	370 93	1 24	46.3	22.0	.....	50
591,810	3,315,552	2,235 71	399 06	1 41	44.8	17.8	55,014 tons.	51
188,198	1,453,336	2,757 75	357 11	1 30	51.9	12.9	34,867,977 rolls.	52
2,231,843	9,247,115	1,160 24	292 58	1 00	40.8	25.2	372,624,428 cigars.	53
75,293	180,567	1,157 48	482 65	1 70	36.3	41.7	.....	54
679,993	4,963,813	2,356 99	322 88	1 03	71.2	13.7	.....	55
567,743	2,282,183	923 21	229 67	76	45.8	24.9	.....	56
103,249	279,866	1,175 91	433 82	1 50	26.4	36.9	.....	57
189,022	425,148	720 59	305 12	1 33	6.1	42.3	49,462,959 bricks.	58
658,282	1,499,849	777 12	341 08	1 57	11.7	43.9	239,356,927 bricks.	59
843,326	1,915,392	825 12	362 41	1 48	21.8	44.0	408,796 tons.	60
276,506	576,702	676 88	324 54	1 31	6.5	47.9	39,475 tons.	61
509,063	809,868	412 36	259 20	1 44	9.2	62.9	291,593 squares.	62
3,705,992	8,504,496	992 12	432 33	1 57	21.7	43.6	.....	63
1,472,762	12,691,322	3,388 87	393 26	1 32	63.8	11.6	1,332,785 dozens.	64
1,517,798	6,558,748	1,586 73	355 62	1 23	57.7	23.1	4,705,019 pairs.	65
41,000	291,500	3,082 68	322 83	1 09	62.6	10.5	165,000 dozens.	66
176,383	737,149	1,316 34	314 97	1 10	51.2	23.9	100,663 dozens.	67

YEAR 1898.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
68.	Fur and felt hats,	5	\$2,775,406	\$494,817	307	1,257
69.	Wool hats,	7	458,635	314,029	279	480
70.	Umbrellas and parasols,	6	355,000	\$60,178	308	579
71.	Dress trimmings, braids, etc.,	8	1,229,296	876,508	298	1,543
72.	Shirts and shirt waists,	10	939,200	1,155,581	298	2,035
73.	Neckwear,	3	135,000	214,342	308	183
74.	Cotton and woolen cloths,	26	3,518,646	3,880,272	265	4,834
75.	Carpets,	20	3,579,213	3,040,388	290	2,982
76.	Cotton goods,	19	3,203,271	1,701,401	290	3,361
77.	Woolen and worsted cassimeres,	11	1,301,000	1,581,776	262	1,700
78.	Woolen and worsted fabrics, ..	17	3,327,892	3,071,629	288	3,105
79.	Woolen and worsted yarns, ...	13	3,416,000	2,461,312	288	1,750
80.	Rugs, yarns, etc.,	6	5,692,824	2,010,467	280	3,226
81.	Carpet yarns,	12	1,008,008	980,471	261	609
82.	Cotton yarns,	8	1,311,037	792,559	294	845
83.	Worsted yarns,	9	2,139,560	1,792,724	273	1,795
84.	Cotton and woolen yarns,	5	978,491	490,796	203	716
85.	Woolen blankets, flannels, etc., ..	5	696,500	1,133,808	351	1,063
86.	Lace goods,	3	795,000	290,322	307	974
87.	Chenille goods,	3	470,000	356,595	300	599
88.	Upholstery goods,	10	1,856,148	1,626,165	301	2,127
89.	Knit goods, underwear,	15	1,903,600	2,187,425	281	2,708
90.	Hosiery,	33	2,485,041	2,370,349	285	6,138
91.	Silk—Broad goods, thrown silk, yarns, etc.,	7	2,277,500	3,818,644	290	3,947
92.	Silk—Broad goods and ribbons, ..	3	1,685,000	1,220,900	302	2,283
93.	Silk—Ribbons,	4	445,313	514,851	299	634
Totals and averages,		855	\$214,015,012	\$119,120,802	286	159,010

YEAR 1898.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$595,085	\$1,731,063	\$1,377 16	\$473 12	\$1 54	28.6	34.4	55,925 dozens.	68
140,773	636,904	1,326 88	293 28	1 05	49.3	22.1	201,718 dozens.	69
157,172	1,337,351	2,309 76	271 45	88	64.3	11.7	1,040,256 pieces.	70
413,277	1,708,275	1,107 11	267 84	50	51.3	24.2	.....	71
549,611	2,211,328	1,086 65	270 08	91	52.3	24.9	341,436 dozens.	72
68,975	375,689	2,052 95	376 91	1 22	57.1	18.4	.....	73
1,692,156	6,683,097	1,382 52	350 05	1 32	58.1	25.3	.....	74
1,075,140	5,122,683	1,717 87	360 54	1 24	59.4	21.0	12,904,587 yards.	75
1,085,787	3,534,679	1,051 67	323 05	1 11	48.1	30.7	.....	76
565,281	2,799,134	1,646 55	332 52	1 27	56.5	20.2	.....	77
1,074,441	5,390,285	1,687 10	336 29	1 17	57.0	19.9	.....	78
527,411	4,545,227	2,597 27	301 38	1 05	54.2	11.6	10,089,876 pounds.	79
1,086,601	4,309,452	1,335 85	336 83	1 20	46.7	25.2	.....	80
201,918	1,442,656	2,368 89	331 56	1 27	68.0	14.0	12,171,606 pounds.	81
254,495	1,310,385	1,550 75	301 18	1 02	60.5	19.4	9,548,201 ponuds	82
467,130	2,990,862	1,666 22	260 25	95	59.9	15.6	3,635,654 pounds.	83
227,559	990,226	1,382 99	317 82	1 08	49.5	23.0	4,301,128 pounds.	84
350,302	2,107,398	1,982 50	329 54	94	53.8	16.6	.....	85
269,910	1,219,698	1,252 26	277 11	90	23.8	22.1	.....	86
171,041	591,280	987 11	285 54	95	60.3	28.9	.....	87
847,374	3,100,667	1,457 76	398 38	1 32	52.4	27.3	.....	88
731,681	3,717,921	1,372 94	270 19	96	58.8	19.7	.....	89
1,537,444	5,035,690	820 40	250 48	88	47.0	30.5	5,426,594 dozens	90
949,659	5,681,769	1,439 52	240 60	83	67.2	16.7	.....	91
533,246	2,942,433	1,288 84	233 57	77	41.5	18.1	4,235,463 yards.	92
213,252	1,067,823	1,684 26	336 36	1 12	48.2	20.0	13,346,776 yards.	93
\$63,396,675	\$248,932,544	\$1,565 51	\$398 69	\$1 39	47.9	25.5	.....

YEAR 1899.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
1.	Steel castings,	7	\$5,393,523	\$822,724	302	1,705
2.	Steel billets, slabs, blooms, etc.,	4	13,318,900	14,459,812	295	1,802
3.	Tool steel,	2	640,000	92,300	300	199
4.	Iron and steel specialties,	3	135,000	38,864	288	140
5.	Iron and steel forgings,	7	491,800	252,496	300	395
6.	Iron specialties,	2	45,000	48,083	301	31
7.	Malleable iron,	4	1,527,533	839,640	298	1,831
8.	Bolts, nuts, etc.,	8	2,192,934	1,456,313	284	1,268
9.	Spikes and rivets,	2	145,690	120,176	272	53
10.	Wire nails,	3	925,000	641,377	133	680
11.	Tacks and small nails,	4	163,500	68,184	280	158
12.	Wire,	6	665,900	200,037	318	202
13.	Wire rope,	2	700,000	361,009	304	232
14.	Wire goods,	4	85,550	53,686	303	127
15.	Wagon and carriage axles, ...	4	476,000	252,082	287	447
16.	Carriage and wagon springs, ..	2	138,000	30,286	265	47
17.	Scales, etc.,	5	208,500	116,309	302	168
18.	Stoves, heaters, ranges, etc....	39	5,616,295	1,103,907	254	3,777
19.	Bath boilers, tanks, etc.,	2	59,000	44,809	304	45
20.	Hardware specialties,	14	3,559,734	1,053,817	280	3,307
21.	Edge tools,	12	1,233,793	399,445	294	1,018
22.	Wrenches, picks, etc.,	5	571,000	228,910	293	341
23.	Locomotives and cars built and repaired,	3	1,461,400	5,634,355	304	6,655
24.	Wrought iron pipe and tubes, ..	5	14,101,131	15,485,996	269	8,754
25.	Cast iron pipe,	3	896,776	912,507	252	740
26.	Brass, copper and bronze goods,	20	2,252,750	2,312,490	303	1,663
27.	Iron and steel bridges,	8	1,001,050	3,193,878	280	1,680
28.	Locomotives, stationary engines, etc.,	9	12,956,218	8,606,253	307	9,827
29.	Engines, boilers, etc.,	10	4,036,999	2,331,637	301	2,163
30.	Cars, springs, axles and railway supplies,	11	27,585,264	10,447,921	309	6,343
31.	Iron vessels and engines,	3	7,866,622	5,117,337	296	6,188
32.	Boilers, tanks, stacks, etc., ..	21	1,857,238	1,848,563	304	1,627
33.	Machinery,	21	9,650,673	3,239,736	302	5,630

YEAR 1899.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$88,679	\$2,857,935	\$1.676 21	\$491 89	\$1 63	28.7	29.3	34,845 tons.	1
1,239,839	18,832,437	10,450 85	688 03	2 33	76.8	6.6	842,183 tons.	2
138,361	450,500	2,263 82	695 28	2 32	20.5	30.7	1,088 tons.	3
49,584	245,980	1,757 00	354 17	1 23	15.8	16.1	932 tons.	4
249,106	784,254	1,985 45	630 65	2 10	32.2	31.8	9,813 tons.	5
18,350	80,420	2,594 20	591 94	1 97	59.8	22.8	913 tons.	6
928,417	2,907,229	1,533 17	507 05	1 70	29.9	33.1	44,852 tons.	7
477,994	2,465,793	1,944 63	376 97	1 33	59.1	19.3	.....	8
17,821	184,040	3,472 45	336 25	1 24	65.3	9.7	6,266 tons.	9
229,328	1,648,903	2,424 86	337 25	2 53	38.9	13.9	31,660 tons.	10
54,460	192,644	1,219 27	344 68	1 23	35.4	28.3	2,287 tons.	11
99,740	425,022	2,104 07	493 76	1.55	47.1	23.5	4,930 tons.	12
113,217	971,118	4,185 85	458 00	1 61	37.2	11.7	4,880 tons.	13
35,879	179,067	1,409 98	282 51	93	30.0	18.4	.....	14
233,815	827,577	1,851 40	523 68	1 82	30.5	28.3	.....	15
23,957	87,126	1,853 96	509 72	1 92	34.8	27.5	690 tons.	16
101,360	360,965	2,148 60	693 33	2 00	32.2	28.1	.....	17
2,021,127	5,154,643	1,364 75	535 11	2 11	21.4	39.2	54,625 tons.	18
19,448	89,691	1,993 13	432 18	1 42	50.0	21.7	.....	19
1,428,934	3,839,960	1,161 16	432 09	1 54	27.0	37.2	.....	20
474,562	1,393,284	1,368 65	466 17	1 59	28.7	34.1	.....	21
179,408	685,497	2,010 26	526 12	1 80	33.4	26.2	.....	22
4,049,215	10,020,362	1,505 63	608 46	2 00	56.2	40.4	.....	23
4,566,297	26,160,998	2,988 46	521 62	1 94	59.2	17.5	452,513 tons.	24
260,556	1,350,861	1,825 41	551 83	1 40	67.6	19.3	61,344 tons.	25
775,144	3,941,441	2,376 08	466 11	1 54	58.7	19.7	.....	26
722,759	5,095,097	3,632 80	430 21	1 54	62.7	14.2	81,970 tons.	27
5,764,855	17,572,598	1,788 20	586 63	1 91	49.0	32.8	.....	28
1,185,194	4,574,136	2,114 72	548 08	1 82	51.0	25.9	.....	29
3,359,489	18,549,857	2,924 26	529 63	1 71	56.3	56.3	.....	30
3,428,153	9,165,761	1,481 22	554 00	1 87	55.8	37.4	.....	31
780,279	3,454,771	2,123 40	479 58	1 58	53.5	22.6	.....	32
3,122,970	8,730,374	1,550 68	554 70	1 84	37.1	35.8	.....	33

YEAR 1899.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
34.	Foundries and machine shops, .	25	\$3,621,293	\$1,925,085	304	3,104
35.	Files, etc.,	2	512,000	105,104	302	394
36.	Saws,	3	335,600	31,600	250	47
37.	Plumber supplies,	3	2,080,669	552,190	312	1,046
38.	Electrical supplies,	4	14,018,383	3,573,084	302	5,184
39.	Shovels, spades, scoops, etc., .	8	648,100	465,999	281	563
40.	Safes and vault doors,	2	68,000	65,539	294	120
41.	Ornamental metal work,	2	403,656	295,511	300	410
42.	Metal and metallic goods,	3	390,000	82,334	265	269
43.	Building and structural iron work,	2	823,000	1,227,578	305	1,240
44.	Iron chains,	5	264,542	252,412	296	299
45.	Iron fences and railing,	7	49,300	133,235	303	155
46.	Agricultural implements	13	2,003,000	1,441,729	298	1,695
47.	Steam pumps,	2	433,243	176,738	301	225
48.	Bicycles,	4	355,600	352,342	274	345
49.	Pianos and organs,	3	291,000	109,037	302	176
50.	Tinware,	5	414,000	272,376	301	275
51.	Paper manufactories,	8	5,082,399	1,739,547	234	1,681
52.	Wall paper,	5	590,000	797,042	275	528
53.	Cigars,	48	3,432,204	3,918,794	295	8,480
54.	Book binding,	3	131,800	77,379	280	176
55.	Cordage, rope and twine,	6	3,450,000	4,519,784	312	2,211
56.	Paper, paper boxes, envelopes, etc.,	27	1,873,115	1,129,745	303	2,302
57.	Pottery,	3	585,000	71,004	286	244
58.	Paving brick,	9	734,478	48,232	234	801
59.	Building brick,	36	3,840,684	181,298	218	1,919
60.	Fire brick,	18	2,746,876	552,972	249	2,947
61.	Slate roofing etc., tonnage,	7	1,031,112	36,761	241	754
62.	Slate roofing, etc., squares, ...	16	749,914	84,414	245	1,647
63.	Window glass, bottles and table goods,	24	14,277,194	2,082,801	263	9,759
64.	Glazed and chrome kid,	7	4,609,490	11,007,875	300	4,598
65.	Men's, women's, misses and children's shoes,	18	2,726,081	3,843,639	298	4,008
66.	Suspenders,	2	120,000	315,000	299	162
67.	Hats and caps,	3	307,676	433,669	283	560

YEAR 1899.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$1,570,135	\$5,201,285	\$1,675 67	\$505 84	\$1 66	37.0	30.2	.....	34
136,071	456,967	1,159 81	345 36	1 14	23.0	29.8	.....	35
24,100	83,624	1,779 23	512 77	2 05	37.8	28.8	.....	36
502,827	1,436,661	1,373 48	480 71	1 54	38.4	35.0	.....	37
2,856,814	11,462,408	2,211 11	551 08	1 82	31.2	24.9	.....	38
291,969	1,493,946	2,653 55	518 69	1 85	31.2	19.5	.....	39
59,965	156,773	1,366 44	499 71	1 70	41.8	38.2	.....	40
210,158	557,185	1,358 87	512 58	1 71	53.0	37.7	.....	41
106,846	300,978	1,118 88	397 20	1 50	27.4	35.5	.....	42
657,942	2,157,573	1,739 98	530 60	1 74	56.9	30.5	.....	43
140,403	584,109	1,953 54	469 58	1 59	43.2	24.0	6,745 tons.	44
69,864	260,498	1,680 63	450 74	1 49	51.1	26.8	.....	45
826,050	3,360,835	1,982 79	487 35	1 64	42.9	24.6	.....	46
166,746	411,714	1,829 84	741 68	2 46	42.9	40.5	.....	47
152,315	594,225	1,722 39	441 09	1 61	59.3	25.6	.....	48
91,705	298,679	1,697 04	521 05	1 73	36.5	30.7	.....	49
118,410	545,475	1,983 55	430 58	1 48	49 9	21.7	.....	50
688,257	4,254,182	2,530 74	409 43	1 44	40.9	16.2	67,929 tons.	51
193,842	1,555,190	2,945 44	367 12	1 33	51.3	12.5	33,438,252 rolls.	52
2,520,043	10,044,441	1,184 49	297 17	1 01	39.0	25.1	406,911,898 cigars.	53
86,318	208,527	1,184 81	490 44	1 75	37.1	41.4	.....	54
798,522	6,239,058	2,821 83	361 16	1 16	72.4	12.8	.....	55
678,205	2,473,800	1,074 63	294 62	97	45.7	27.4	.....	56
105,758	291,774	1,195 80	433 43	1 52	24.3	36.3	.....	57
249,889	571,535	713 52	311 97	1 33	8.4	43.7	64,848,987 bricks.	58
695,677	1,679,970	875 44	362 52	1 66	10.8	41.4	239,069,295 bricks.	59
1,133,377	2,486,398	843 70	384 59	1 55	22.2	45.6	538,099 tons.	60
245,565	506,112	671 24	325 68	1 35	7.3	48.5	38,196 tons.	61
575,890	792,253	590 32	349 66	1 43	8.7	59.2	301,456 squares.	62
4,174,636	9,583,487	982 02	427 77	1 63	21.7	43.6	.....	63
1,907,913	16,342,644	3,554 29	414 94	1 38	67.4	11.7	1,688,100 dozens.	64
1,506,325	6,611,046	1,649 46	375 83	1 26	58.1	22.8	5,037,650 pairs.	65
61,150	483,250	2,983 02	377 47	1 26	65.2	12.7	180,500 dozens.	66
191,509	698,891	1,248 02	342 69	1 21	62.0	27.5	96,229 dozens.	67

YEAR 1899.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

No.	Character of Industries.	Number of establishments considered.	Capital invested in plants and fixed working capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
68.	Fur and felt hats,	5	\$2,775,439	\$593,645	309	1,412
69.	Wool hats,	7	414,493	333,533	266	537
70.	Umbrellas and parasols,	6	376,000	790,038	308	599
71.	Dress trimmings, braids, etc.,	8	1,319,688	912,697	301	1,760
72.	Shirts and shirt waists,	10	985,900	1,361,980	298	2,370
73.	Neckwear,	3	135,000	261,882	308	195
74.	Cotton and woolen cloths,	26	3,652,467	4,877,112	273	5,340
75.	Carpets,	20	3,943,864	3,773,518	299	3,113
76.	Cotton goods,	19	3,614,205	1,919,415	295	3,641
77.	Woolen and worsted cassimeres,	11	1,382,000	2,058,438	281	1,928
78.	Woolen and worsted fabrics, ..	17	3,507,180	3,554,014	296	3,439
79.	Woolen and worsted yarns, ...	13	2,951,000	3,135,044	293	1,800
80.	Rugs, yarns, etc.,	6	6,029,446	2,192,280	287	3,365
81.	Carpet yarns,	12	1,102,532	1,314,047	296	665
82.	Cotton yarns,	8	1,362,148	830,654	290	850
83.	Worsted yarns,	9	2,589,186	2,860,743	275	1,829
84.	Cotton and woolen yarns,	5	994,845	455,214	299	728
85.	Woolen blankets, flannels, etc., ..	5	794,122	\$15,512	279	967
86.	Lace goods,	3	\$60,850	350,185	305	1,098
87.	Chenille goods,	3	465,000	365,000	300	601
88.	Upholstery goods,	10	1,985,679	1,730,220	290	2,278
89.	Knit goods, underwear,	15	2,060,429	2,336,176	280	3,002
90.	Hosiery,	33	3,034,145	2,400,854	281	6,360
91.	Silk—Broad goods, thrown silk, yarns, etc.,	7	2,402,500	4,779,556	279	3,761
92.	Silk—Broad goods and ribbons, ..	3	1,720,000	1,350,000	301	2,677
93.	Silk—Ribbons,	4	463,316	517,973	293	644
Totals and averages,		855	\$245,877,826	\$169,586,637	288	181,936

YEAR 1899.

RECAPITULATION OF COMPARATIVE TABLE BY YEARS, 1896 SERIES.

Aggregate amount of wages paid	Market value of production.	Value of production during the year per each employe.	Average yearly earnings.	Average daily wage.	Relative per cent. basic material to value of production.	Relative per cent. wages to value of production.	Total production in tons or given quantity.	No.
\$665,296	\$2,020,731	\$1,431 11	\$471 17	\$1 52	29.4	32.9	64,127 dozens	65
163,164	746,186	1,389 55	303 84	1 14	44.7	21.9	208,122 dozens.	69
162,654	1,380,131	2,319 08	271 54	88	56.9	11.7	1,067,840 pieces.	70
479,688	2,085,395	1,184 88	272 55	91	43.8	23.0	.....	71
705,735	2,708,068	1,142 64	297 78	1 00	50.3	26.1	400,296 dozens.	72
73,883	437,720	2,244 72	378 89	1 23	59.8	16.9	.....	73
1,980,979	8,458,150	1,583 92	370 97	1 36	57.7	23.4	.....	74
1,274,402	6,365,985	2,044 97	409 38	1 37	59.3	20.0	15,648,813 yards.	75
1,216,453	3,924,249	1,077 79	334 10	1.13	48 9	31.0	.....	76
673,336	3,548,303	1,840 41	349 24	1 24	58.0	19.0	.....	77
1,223,967	6,107,189	1,775 86	355 90	1 20	58.2	20.0	.....	78
604,593	5,929,440	3,294 13	335 88	1 15	52.9	10.2	10,413,714 pounds.	79
1,269,948	4,884,288	1,451 59	377 40	1 32	44.9	26.0	.....	80
254,414	1,851,194	2,783 75	382 58	1 29	71.0	31.7	16,111,761 pounds.	81
269,631	1,395,941	1,642 28	305 45	1 05	59.5	18.6	9,758,165 pounds.	82
572,312	4,496,108	2,444 87	311 21	1 13	63.6	12.7	5,420,310 pounds.	83
243,827	991,423	1,361 84	324 92	1 12	45.9	24.6	3,741,956 pounds.	84
322,275	1,633,499	1,689 24	333 27	1 19	49.9	19.7	.....	85
113,641	1,307,879	1,191 15	285 65	94	26.8	24.0	.....	86
237,598	664,622	1,105 86	395 34	1 32	54.9	35.7	.....	87
921,752	3,514,614	1,542 85	404 63	1 40	49.2	26.2	.....	88
842,235	4,054,739	1,350 71	280 59	1 00	57.6	20.8	.....	89
1,669,887	5,406,210	850 03	262 56	93	44.4	30.9	6,213,329 dozens.	90
1,008,474	7,131,389	1,896 14	268 11	96	67.0	14.1	.....	91
528,597	3,172,400	1,527 40	259 31	86	42.6	17.0	5,668,697 yards.	92
217,812	1,038,290	1,612 27	338 22	1 15	40.9	21.0	15,984,362 yards.	93
\$78,680,725	\$332,808,934	\$1,829 36	\$432 49	\$1 50	50.9	23.6	.....

RESUME.

THE SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Years.	Number of es- tablish- ments consid- ered.	Capital invested in plants and fixed work- ing capital.	Value of basic material.	Average number of days in operation.	Number of persons employed.
1896,	855	\$205,383,913	\$96,459,277	298	126,578
1897,	855	298,612,073	106,263,226	276	142,046
1898,	855	214,015,012	119,120,802	286	159,010
1899,	855	245,877,826	169,586,637	288	181,936

(Note.—Cost basic material, plumbers' supplies, three establishments not included.)

RESUME.

THE SAME ESTABLISHMENTS FOR THE YEARS 1896, 1897, 1898 AND 1899.

Aggregate amount of wages paid.	Market value of production.	Value of production during the year to each em- ploye.	Average yearly earnings	Average daily wage.	Relative per cent. basic ma- terial to value of produc- tion.	Relative per cent. wages to value of produc- tion.
\$51,873,543	\$195,205,164	\$1,542 17	\$409 81	\$1 53	49.4	26.6
54,395,315	213,083,519	1,500 10	382 94	1 39	49.9	25.5
63,396,675	248,932,544	1,565 51	398 69	1 39	47.9	25.5
78,680,725	332,808,934	1,829 36	432 49	1 50	50.9	23.6

COMPARISON OF TOTALS ALL ESTABLISHMENTS (855) FOR THE YEARS 1896, 1897, 1898 AND 1899.

Years.	Total number of es- tablish- ments consid- ered.	Totals.	Increase (+) or de- crease (—) as com- pared with preced- ing year.		Increase (+) or de- crease (—) 1899 as compared with 1896.	
			Amounts.	Per- centage.	Amounts.	Per- centage.
CAPITAL INVESTED.						
1896,	855	\$205,383,913	.. .....	.....	.....	.....
1897,	855	208,612,073	+\$3,228,160	+1.6	.....	.....
1898,	855	214,015,012	+5,402,939	+2.6	.....	.....
1899,	855	245,877,826	+31,862,814	+14.9	+\$40,493,913	+19.7
VALUE OF BASIC MA- TERIAL.						
1896,	855	\$96,459,277	.....	.....	.....	.....
1897,	855	106,263,226	+\$9,803,949	+10.2	.....	.....
1898,	855	119,120,802	+12,857,576	+12.1	.....	.....
1899,	855	169,586,637	+50,465,835	+42.4	+\$73,127,360	+75.8
AVERAGE NUMBER OF DAYS IN OPERATION.						
1896,	855	268	.....	.....	.....	.....
1897,	855	276	+8	+3.0	.....	.....
1898,	855	286	+10	+3.6	.....	.....
1899,	855	288	+2	+0.7	+20	+7.5
NUMBER OF PERSONS EMPLOYED.						
1896,	855	126,578	.....	.....	.....	.....
1897,	855	142,046	+15,468	+12.2	.....	.....
1898,	855	159,010	+16,964	+11.9	.....	.....
1899,	855	181,936	+22,926	+14.4	+55,358	+43.7
AGGREGATE AMOUNT OF WAGES PAID.						
1896,	855	\$51,873,453	.....	.....	.....	.....
1897,	855	54,395,315	+\$2,521,862	+4.8	.....	.....
1898,	855	62,396,675	+9,001,360	+16.5	.....	.....
1899,	855	78,680,725	+15,284,050	+24.1	+\$26,807,272	+51.7
MARKET VALUE OF PRO- DUCTION.						
1896,	855	\$195,205,164	.....	.....	.....	.....
1897,	855	213,083,519	+\$17,878,355	+9.2	.....	.....
1898,	855	248,932,544	+35,849,025	+16.8	.....	.....
1899,	855	332,808,984	+\$83,876,390	+33.7	+\$137,603,770	+70.5

COMPARISON OF TOTALS ALL ESTABLISHMENTS (855) FOR THE YEARS 1896, 1897, 1898 AND 1899.

Years.	Total number of establishments considered.	Totals.	Increase (+) or decrease (—) as compared with preceding year.		Increase (+) or decrease (—) 1899 as compared with 1896.		
			Amounts.	Percentage.	Amounts.	Percentage.	
AVERAGE YEARLY EARNINGS.							
1896,	855	\$409 81 .....	.....	.....	.....	.....
1897,	855	382 94	—\$26 87	—6.5 .....	.....	.....
1898,	855	398 69	+15 75	+4.1 .....	.....	.....
1899,	855	432 49	+33 80	+8.5	+\$22 68	+5.5	
AVERAGE DAILY WAGE.							
1896,	855	1 53 .....	.....	.....	.....	.....
1897,	855	1 39	—14	—9.1 .....	.....	.....
1898,	855	1 39 .....	.....	.....	.....	.....
1899,	855	1 50	+11	+7.9	—03	—2.0	
VALUE OF PRODUCTION DURING THE YEAR TO EACH EMPLOYEE.							
1896,	855	\$1,542 17 .....	.....	.....	.....	.....
1897,	855	1,500 10	—\$42 07	—2.7 .....	.....	.....
1898,	855	1,565 51	+65 41	+4.4 .....	.....	.....
1899,	855	1,829 36	+263 85	+16.9	+\$287 19	+18.6	
RELATIVE PER CENT. BASIC MATERIAL TO VALUE OF PRODUCTION.							
1896,	855	49.4 .....	.....	.....	.....	.....
1897,	855	49.9	+0.5 .....	.....	.....	.....
1898,	855	47.9	—2.0 .....	.....	.....	.....
1899,	855	50.9	+3.0 .....	.....	+1.5 .....	.....
RELATIVE PER CENT. WAGES TO VALUE OF PRODUCTION.							
1896,	855	26.6 .....	.....	.....	.....	.....
1897,	855	25.5	—1.1 .....	.....	.....	.....
1898,	855	25.5 .....	.....	.....	.....	.....
1899,	855	23.6	—1.9 .....	.....	—3.0 .....	.....

NOTE.—In basic material eliminating the three plumbing establishments.

PIG IRON PRODUCTION, 1899.

Capital invested,	\$68,294,823
Gross tons,	6,542,998
Realized value,	\$98,203,803
Average realized value per ton,.....	\$15 01
Value of basic material, ore and scrap or cinder only (fuel, limestone, management, office help and all other items of expense are not considered),	\$38,861,664
Average cost of basic material per ton,	\$5 94
Average days in operation,	327
Total number of working people employed,	15,347
Aggregate wages paid to these working people.	\$7,599,533
Average earnings for the year,	\$495 18
Average daily wage,	\$1 51
Cost of labor per ton,	\$1 16
Tonnage per man per day,	1.3

COMPARISON OF PIG IRON PRODUCTION FOR THE YEARS
1896, 1897, 1898 and 1899.

Years.	Totals.	Increase (+) or decrease (—) as compared with previous years.		Increase (+) or decrease (—) 1899 as compared with 1896.	
		Amount.	Per-centage.	Amount.	Per-centage.
GROSS TONS PRODUCED.					
1896,	4,026,350	.....	.....	.....	.....
1897,	4,617,634	+591,284	+14.7	.....	.....
1898,	5,367,979	+750,345	+16.2	.....	.....
1899,	6,542,998	+1,175,019	+21.9	+2,516,648	+62.5
REALIZED VALUE OF PRODUCTION.					
1896,	\$45,172,039	.....	.....	.....	.....
1897,	48,884,854	+\$3,712,815	+8.2	.....	.....
1898,	53,331,228	+4,446,374	+9.1	.....	.....
1899,	98,203,803	+44,872,575	+84.1	+\$53,031,764	+117.4
AVERAGE REALIZED VALUE PER TON.					
1896,	\$11 21	.....	.....	.....	.....
1897,	10 58	—\$0 63	—5.6	.....	.....
1898,	9 94	—64	—6.0	.....	.....
1899,	15 01	+5 07	+51.0	+\$3 80	+33.9
AGGREGATE COST OF BASIC MATERIAL.					
1896,	\$26,251,420	.....	.....	.....	.....
1897,	29,962,533	+\$3,711,113	+14.1	.....	.....
1898,	29,377,657	—584,876	—1.9	.....	.....
1899,	38,861,664	+9,484,007	+32.2	+\$12,610,244	+48.0
NUMBER OF WORKING PEOPLE EMPLOYED					
1896,	11,580	.....	.....	.....	.....
1897,	11,272	—308	—2.7	.....	.....
1898,	11,911	+639	+5.6	.....	.....
1899,	15,347	+3,436	+28.8	+3,767	+32.5
AVERAGE DAYS OF EMPLOYMENT.					
1896,	289	.....	.....	.....	.....
1897,	306	+17	+5.9	.....	.....
1898,	326	+30	+9.8	.....	.....
1899,	327	—9	—2.7	+38	+13.1

COMPARISON OF PIG IRON PRODUCTION FOR THE YEARS 1896, 1897, 1898 and 1899—Continued.

Years.	Totals.	Increase (+) or decrease (—) as compared with previous years.		Increase (+) or decrease (—) 1899 as compared with 1896.	
		Amount.	Percentage.	Amount.	Percentage.
AGGREGATE AMOUNT OF WAGES PAID.					
1896,	\$4,589,165	.....	.....	.....	.....
1897,	4,676,970	+\$87,805	+1.9	.....	.....
1898,	5,268,503	+591,533	+12.6	.....	.....
1899,	7,599,533	+2,331,030	+44.2	+\$3,010,363	+65.6
AVERAGE YEARLY EARNINGS.					
1896,	\$396 30	.....	.....	.....	.....
1897,	414 92	+\$18 62	+4.7	.....	.....
1898,	442 32	+27 40	+6.6	.....	.....
1899,	495 18	+52 86	+11.9	+\$98 83	+25.0
AVERAGE DAILY WAGE.					
1896,	\$1 37	.....	.....	.....	.....
1897,	1 36	—\$0 01	—0.7	.....	.....
1898,	1 32	—04	—3.0	.....	.....
1899,	1 51	+19	+14.4	+\$0 14	+10.2
AVERAGE COST OF LABOR PER TON.					
1896,	\$1 14	.....	.....	.....	.....
1897,	1 01	—\$0 13	—11.4	.....	.....
1898,	98	—03	—2.9	.....	.....
1899,	1 16	+18	+18.3	+02	+1.8
AVERAGE COST OF BASIC MATERIAL PER TON.					
1896,	\$6 52	.....	.....	.....	.....
1897,	6 48	—\$0 04	—6	.....	.....
1898,	5 48	—1 00	—15.4	.....	.....
1899,	5 94	+46	+8.4	—\$0 58	—8.9

PRODUCTION OF PIG IRON, 1899, BY COUNTIES, AND RELATIVE PER CENT.

	Gross Tons.	Per cent.
Allegheny,	3,278,420	50.11
Mercer,	500,251	7.64
Cambria,	449,261	6.87
Lawrence,	425,068	6.50
Lebanon,	297,233	4.54
Dauphin,	276,479	4.23
Lehigh,	254,711	3.89
Berks,	248,658	3.80
Lackawanna,	155,350	2.37
Montgomery,	141,477	2.16
Northampton,	114,483	1.75
Fayette,	73,609	1.13
Bedford,	69,276	1.06
Armstrong,	56,985	.87
Jefferson,	55,116	.84
Westmoreland,	34,394	.525
Carbon,	27,083	.414
Centre,	22,373	.342
York,	13,236	.202
Lancaster,	12,225	.187
Delaware,	10,268	.157
Bucks,	10,218	.156
Montour,	7,923	.121

Cameron,	7,187	.110
Huntingdon,	1,714	.026
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	6,542,998	100.00
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PRODUCTION OF STEEL, 1899.

Bessemer, gross tons,	3,971,835
Open hearth, gross tons,	2,398,210
Crucible, gross tons,	75,356
Other processes, gross tons,	758
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	6,446,159
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PRODUCTION OF STEEL IN 1899, AS COMPARED WITH 1898,
1897 AND 1896.

Years.	Gross tons.	Increase (+) or decrease (—) as compared with previous years.		Increase (+) or decrease (—) 1899 as compared with 1896.	
		Amount.	Per-centage.	Amount.	Per-centage.
BESSEMER.					
1896,	2,292,814	.....	.....	.....	.....
1897,	2,848,204	+555,390	+24.2	.....	.....
1898,	3,357,684	+509,480	+17.9	.....	.....
1899,	3,971,825	+614,151	+18.3	+1,679,021	+73.2
OPEN HEARTH.					
1896,	1,609,608	.....	.....	.....	.....
1897,	1,421,373	+411,765	+40.8	.....	.....
1898,	1,848,732	+427,359	+30.1	.....	.....
1899,	2,398,210	+549,478	+29.7	+1,388,602	+137.5
CRUCIBLE.					
1896,	43,107	.....	.....	.....	.....
1897,	49,245	+6,138	+14.2	.....	.....
1898,	69,568	+20,323	+41.2	.....	.....
1899,	76,114	+6,546	+9.4	+33,007	+76.6
TOTAL PRODUCTION.					
1896,	3,345,529	.....	.....	.....	.....
1897,	4,318,622	+973,093	+29.0	.....	.....
1898,	5,275,984	+957,362	+22.2	.....	.....
1899,	6,446,159	+1,170,175	+22.2	+3,100,630	+92.7

PRODUCTION OF STEEL, 1899, BY COUNTIES, WITH RELATIVE PER CENT.

	Gross Tons.	Per cent.
Allegheny,	4,104,782	63.68
Cambria,	509,154	7.90
Lackawanna,	452,637	7.02
Dauphin,	366,893	5.69
Lawrence,	215,000	3.33
Philadelphia,	214,727	3.33
Chester,	178,543	2.77
Mercer,	132,060	2.05
Westmoreland,	114,106	1.77
Northampton,	66,538	1.032
Delaware,	32,463	.504
Mifflin,	20,205	.314
Armstrong,	19,618	.304
Beaver,	10,025	.156
Venango,	4,988	.080
Berks,	2,531	.040
Montour,	1,652	.026
Crawford,	237	.004
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	6,446,159	100.00
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PRODUCTION OF IRON AND STEEL ROLLED INTO FINISHED FORM, 1899 (NET TONS).

Capital invested,	\$141,098,560
Production:	
Bar, rods, strip steel, skelp, shapes, rolled axles, structural iron, etc. (not including billets or muck bar),	4,270,457
Plates and sheets,	1,232,339
Cut nails and cut spikes,	46,434
Rails,	1,379,816
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Total, net tons,	*6,929,046
Value, of production,	\$225,155,176
Average value per ton,	\$32 49
Value of basic material; the iron and steel only out of which the rolled production is made (fuel, manage- ment, office help and all other items of expense are not considered),	\$136,984,908
Average cost of basic material, per ton,	\$19 77
Average days in operation,	287
Average number of working people employed,	69,982
Aggregate wages paid to these working people,	\$39,120,129
Average earnings for the year,	\$559
Average daily wage,	\$1 95
Cost of labor per ton,	\$5 65

*To show the entire tonnage of iron and steel rolled into finished form, there should be included 164,439 tons of black plate rolled at the black plate tin works. This production is not included in this table for the reason that to do so would be to twice count persons employed, wages, values, etc., including this black plate, the total production would be 7,093,485 net tons.

COMPARISON OF IRON AND STEEL ROLLED INTO FINISHED FORM FOR THE YEARS 1896, 1897, 1898 AND 1899.

Years.	Totals.	Increase (+) or decrease (—) as compared with previous years.		Increase (+) or decrease (—) 1899 as compared with 1896.	
		Amount.	Per-centage.	Amount.	Per-centage.
CAPITAL INVESTED.					
1896,	\$120,620,912	.....	.....	.....	.....
1897,	126,170,391	+\$5,549,479	+4.6	.....	.....
1898,	130,795,783	+4,625,392	+3.7	.....	.....
1899,	141,098,560	+10,302,777	+7.9	+20,477,648	+17.0
VALUE OF PRODUCTION.					
1896,	\$119,029,762	.....	.....	.....	.....
1897,	123,900,771	+\$4,871,009	+40.9	.....	.....
1898,	136,820,442	+12,919,671	+10.4	.....	.....
1899,	225,155,176	+88,334,734	+64.6	+\$106,125,414	+89.2
VALUE OF BASIC MATERIAL USED.					
1896,	\$70,811,190	.....	.....	.....	.....
1897,	77,941,524	+\$7,130,334	+10.7	.....	.....
1898,	79,924,581	+1,983,057	+2.05	.....	.....
1899,	136,984,908	+57,060,327	+71.4	+\$66,173,718	+93.4
PRODUCTION NET TONS.					
1896,	3,757,070	.....	.....	.....	.....
1897,	4,714,333	+\$957,263	+25.5	.....	.....
1898,	5,537,249	+822,916	+17.4	.....	.....
1899,	6,929,046	+1,391,797	+25.1	+3,171,976	+84.4
AVERAGE VALUE PER NET TON.					
1896,	\$21 68	.....	.....	.....	.....
1897,	26 28	—\$5 40	—17.0	.....	.....
1898,	24 71	—1 57	—5.09	.....	.....
1899,	32 49	+7 78	+31.5	+81	+2.6
AGGREGATE AMOUNT PAID TO WORKING PEOPLE.					
1896,	\$23,832,628	.....	.....	.....	.....
1897,	24,349,966	+\$517,338	+2.2	.....	.....
1898,	27,879,202	+3,529,236	+14.4	.....	.....
1899,	39,120,129	+11,240,927	+40.3	+\$15,287,501	+64.1

COMPARISON OF IRON AND STEEL ROLLED INTO FINISHED FORM FOR THE YEARS 1896, 1897, 1898 AND 1899.—Continued,

Years.	Totals.	Increase (+) or decrease (—) as compared with previous years.		Increase (+) or decrease (—) 1899 as compared with 1896.	
		Amount.	Per-centage.	Amount.	Per-centage.
AVERAGE NUMBER OF WORKING PEOPLE.					
1896,	53,573	.....	.....	.....	.....
1897,	52,798	—775	—1.4	.....	.....
1898,	56,230	+3,432	+6.5	.....	.....
1899,	69,982	+13,752	+24.5	+16,409	+30.6
AVERAGE EARNINGS FOR THE YEAR.					
1896,	\$444 89	.....	.....	.....	.....
1897,	461 19	+\$16 30	+3.6	.....	.....
1898,	495 81	+34 62	+7.5	.....	.....
1899,	559 00	+63 19	+12.7	+114 11	+25.6
AVERAGE DAILY WAGE.					
1896,	\$1 77	.....	.....	.....	.....
1897,	1 71	—06	—3.4	.....	.....
1898,	1 78	+07	+4.1	.....	.....
1899,	1 95	+17	+9.5	+18	+10.2
AVERAGE NUMBER OF DAYS IN OPERATION.					
1896,	251	.....	.....	.....	.....
1897,	269	+18	+7.2	.....	.....
1898,	278	+9	+3.3	.....	.....
1899,	287	+9	+3.2	+36	+14.3
AVERAGE COST OF LABOR PER TON.					
1896,	\$6 34	.....	.....	.....	.....
1897,	5 16	—\$118	—18.6	.....	.....
1898,	5 03	—13	—2.5	.....	.....
1899,	6 65	+62	+12.3	—69	—10.9
AVERAGE COST OF BASIC MATERIAL PER TON.					
1896,	\$18 32	.....	.....	.....	.....
1897,	16 53	—\$1 79	—9.8	.....	.....
1898,	14 43	—2 10	—12.7	.....	.....
1899,	19 77	+5 34	+37.0	+\$1 45	+7.9

PRODUCTION OF IRON AND STEEL ROLLED INTO FINISHED
FORM, 1899, BY COUNTIES, WITH RELATIVE PER CENT.

	Net Tons.	Per cent.
Allegheny,	3,922,975	55.30
Lackawanna,	458,592	6.46
Cambria,	451,623	6.37
Dauphin,	435,256	6.14
Montgomery,	370,475	5.22
Chester,	207,565	2.93
Westmoreland,	189,614	2.67
Berks,	161,365	2.28
Lawrence,	125,829	1.78
Lebanon,	95,721	1.35
Mercer,	86,743	1.22
Lehigh,	84,466	1.19
Philadelphia,	75,464	1.06
Beaver,	71,548	1.01
Lancaster,	64,068	.90
Blair,	51,599	.73
Armstrong,	39,750	.56
Columbia,	33,600	.473
Mifflin,	29,361	.414
Washington,	26,025	.367
Northampton,	24,057	.339
Northumberland,	20,508	.29
Perry,	12,498	.176
Montour,	9,889	.139
Indiana,	8,404	.119
Fayette,	8,143	.115
Lycoming,	8,013	.113
York,	7,733	.109
Delaware,	3,580	.05
Bucks,	3,404	.049
Schuylkill,	2,956	.04
Centre,	2,424	.034
Crawford,	237	.003
	<hr/> 7,093,485 <hr/>	<hr/> 100.00 <hr/>

TIN PLATE.

PRODUCTION OF TIN PLATE (BLACK PLATE WORKS), 1899.

Number of plants in operation (only 18 turned out a tinned production),	21
Capital invested,	\$8,150,000
Production in black plate in pounds,	368,600,734
Quantity of black plate tinned, pounds,	292,164,734
Quantity of black plate not tinned, pounds,	76,436,000
Value of black plate not tinned,	\$1,902,691
Value of the tinned production,	\$10,249,841
Total value of entire production, tinned and untinned, ..	\$12,152,532
Average value per hundred pounds of tinned production, ..	\$3 51
Average value per ton of 2,000 pounds of black plate not tinned,	\$49 79
Average number of days in operation,	223
Average number of working people employed,	7,682
Aggregate amount of wages paid to these working people,	\$4,054,395
Average earnings for the year,	\$527 78
Average daily wage,	\$2 36
Total number of hot mills,	158
Total number of tinning sets,	211
Daily capacity in black plate, net tons,	1,017
Daily tinning capacity, net tons,	837

TIN PLATE.

BLACK PLATE WORKS, 1899 AS COMPARED WITH 1898, 1897 AND 1896.

Years.	Number of establishments in operation.	Totals.	Increase (+) or decrease (−) 1899 as compared with previous years.		Increase (+) or decrease (−) 1899 as compared with 1896.	
			Amount.	Per-centage.	Amounts.	Per-centage.
CAPITAL INVESTED.						
1896,	13	\$3,627,275	.....	.....	.....	.....
1897,	15	5,017,127	+\$1,389,852	+38.3	.....	.....
1898,	18	7,903,000	+2,885,873	+57.5	.....	.....
1899,	21	8,150,000	+247,000	+3.1	+\$4,522,725	+124.7
COST OF BASIC MATERIAL.						
1896,	13	\$2,238,422	.....	.....	.....	.....
1897,	15	3,462,320	+\$1,223,898	+54.7	.....	.....
1898,	18	4,103,428	+641,108	+18.5	.....	.....
1899,	21	6,666,081	+2,562,653	+62.5	+\$4,427,659	+137.8
QUANTITY IN POUNDS OF BLACK PLATE PRODUCED AND TINNED.						
1896,	13	97,814,762	.....	.....	.....	.....
1897,	15	179,705,766	+81,891,004	+83.7	.....	.....
1898,	18	222,528,000	+42,822,234	+23.8	.....	.....
1899,	21	292,164,734	+69,636,734	+31.3	+194,349,972	+193.7
QUANTITY OF POUNDS PRODUCED AND NOT TINNED.						
1896,	13	60,491,728	.....	.....	.....	.....
1897,	15	74,451,835	+13,960,107	+23.1	.....	.....
1898,	18	121,536,000	+47,084,165	+63.2	.....	.....
1899,	21	76,436,000	−45,100,000	−37.1	+15,944,272	+28.4
ENTIRE PRODUCTION OF BLACK PLATE IN POUNDS, TINNED AND UNTINNED.						
1896,	13	158,306,490	.....	.....	.....	.....
1897,	15	254,157,601	+95,851,111	+60.5	.....	.....
1898,	18	344,064,000	+89,906,399	+35.4	.....	.....
1899,	21	368,600,734	+24,536,734	+7.1	+210,294,244	+132.8
VALUE OF TIN AND TERNE PLATE PRODUCED.						
1896,	13	\$3,157,699	.....	.....	.....	.....
1897,	15	5,180,624	+\$2,022,925	+64.0	.....	.....
1898,	18	6,697,921	+1,517,297	+29.3	.....	.....
1899,	21	10,249,841	+3,551,920	+53.0	+\$7,092,142	+224.6

TIN PLATE.

BLACK PLATE WORKS, 1899 AS COMPARED WITH 1898, 1897 AND 1896
—Continued.

Years.	Number of es- tablish- ments in oper- ation.	Totals.	Increase (+) or de- crease (−) 1899 as compared with previous years.		Increase (+) or de- crease (−) 1899 as compared with 1896.	
			Amount.	Per- centage.	Amounts.	Per- centage.
VALUE OF THE BLACK PLATE NOT TINNED.						
1896,	13	\$1,480,112	.....	.....	.....	.....
1897,	15	1,657,297	+\$177,185	+11.9	.....	.....
1898,	18	2,646,314	+989,017	+59.7	.....	.....
1899,	21	1,902,691	−743,623	−28.1	+\$422,579	+28.5
VALUE OF ENTIRE PRODUCTION OF BLACK PLATE TINNED AND UNTINNED.						
1896,	13	\$4,637,811	.....	.....	.....	.....
1897,	15	6,837,921	+\$2,200,110	+47.4	.....	.....
1898,	18	9,344,235	+2,506,314	+36.6	.....	.....
1899,	21	12,152,532	+2,808,297	+30.1	+\$7,514,721	+162.0
VALUE PER ONE HUNDRED POUNDS OF TIN AND TERNE PLATE.						
1896,	13	\$3 23	.....	.....	.....	.....
1897,	15	2 88	−\$0 35	−10.9	.....	.....
1898,	18	3 01	+13	+4.5	.....	.....
1899,	21	3 51	+50	+16.6	+28	+8.7
VALUE PER TON OF 2,000 POUNDS OF BLACK PLATE NOT TINNED.						
1896,	13	\$48 93	.....	.....	.....	.....
1897,	15	44 51	−\$4 42	−9.0	.....	.....
1898,	18	43 83	−68	−1.5	.....	.....
1899,	21	49 79	+5 96	+13.6	+86	+1.8
AVERAGE NUMBER OF DAYS IN OPERATION.						
1896,	13	250	.....	.....	.....	.....
1897,	15	281	+31	+12.4	.....	.....
1898,	18	278	−3	−1.0	.....	.....
1899,	21	223	−55	−19.8	−27	−10.8
AVERAGE NUMBER OF WORKING PEOPLE EM- PLOYED.						
1896,	13	3,194	.....	.....	.....	.....
1897,	15	3,920	+726	+22.7	.....	.....
1898,	18	5,036	+1,116	+28.5	.....	.....
1899,	21	7,682	+2,646	+52.5	+4,488	+140.5

TIN PLATE.

BLACK PLATE WORKS, 1899 AS COMPARED WITH 1898, 1897 AND 1896
—Continued.

Years.	Number of es- tablish- ments in oper- ation.	Totals.	Increase (+) or de- crease (—) 1899 as compared with previous years.		Increase (+) or de- crease (—) 1899 as compared with 1896.		
			Amount.	Per- centage.	Amounts.	Per- centage.	
AGGREGATE AMOUNT OF WAGES PAID.							
1896,	13	\$1,437,226	.....	.....	.....	.....
1897,	15	2,227,217	+\$789,991	+54.9	.....	.....
1898,	18	2,943,954	+716,737	+32.2	.....	.....
1899,	21	4,054,395	+1,110,441	+37.7	+\$2,617,169	+182.1	
AVERAGE YEARLY EARN- INGS.							
1896,	13	\$456 55	.....	.....	.....	.....
1897,	15	568 17	+\$111 62	+24.4	.....	.....
1898,	18	584 58	+16 41	+2.9	.....	.....
1899,	21	527 78	—56 80	—9.7	+\$71 23	+15.6	
AVERAGE DAILY WAGE.							
1896,	13	\$1 80	.....	.....	.....	.....
1897,	15	2 02	+\$0 22	+12.2	.....	.....
1898,	18	2 10	+08	+4.0	.....	.....
1899,	21	2 36	+26	+12.4	+56	+31.1	

PRODUCTION OF TIN PLATE DIPPING WORKS, 1899.

(Tin dipping works buy all their black plate.)

Number of plants in operation,	7
Number of tinning sets,	55
Daily capacity in net tons,	203
Capital invested,	\$925,000
Value of basic material, black plate and tin and lead,...	\$1,370,086
Average number of days in operation,	257
Average number of working people employed,	326
Aggregate of wages paid to these working people,	\$127,564
Total value of production,	\$1,916,038
Total production in pounds, tin and terne,	38,918,000
Average value per net ton,	\$98 47
Average value per 100 pounds,	\$4 92
Average earnings for the year,	\$391 30
Average daily wage,	\$1 52

COMBINED PRODUCTION OF TIN AND TERNE PLATE BY THE BLACK PLATE WORKS AND THE DIPPING WORKS, 1899.

Number of plants producing a tinned output,	25
Total production in pounds of tin and terne plate,	331,082,734
Total value,	\$12,165,879
Average value per hundred pounds,	\$3 67

COMBINED PRODUCTION OF TIN AND TERNE PLATE BY
THE BLACK PLATE AND DIPPING WORKS IN 1899, AS COM-
PARED WITH 1898, 1897 AND 1896.

NUMBER OF PLANTS PRODUCING A TINNED OUTPUT.

1896,	25
1897,	25
1898,	25
1899,	25

Years		Increase (+) or de- crease (—) as com- pared with previous years.		Increase (+) or de- crease (—) 1899 as compared with 1896.	
		Amount.	Per- centage.	Amount.	Per- centage.

TOTAL NUMBER OF POUNDS OF
TIN AND TERNE PLATE.

1896,	139,588,703	.....	.....	.....	.....
1897,	225,641,766	+86,053,063	+61.6	.....	.....
1898,	262,934,000	+37,292,234	+16.5	.....	.....
1899,	331,082,734	+68,148,734	+25.9	+191,494,031	+137.2

TOTAL VALUE.

1896,	\$5,045,097	.....	.....	.....	.....
1897,	6,907,041	+\$1,951,944	+38.7	.....	.....
1898,	8,445,097	+1,448,056	+20.7	.....	.....
1899,	12,165,879	+3,720,782	+44.1	+\$7,120,782	+141.1

AVERAGE VALUE PER HUN-
DRED POUNDS.

1896,	\$3 61	.....	.....	.....	.....
1897,	3 10	—\$0 51	—14.1	.....	.....
1898,	3 21	+11	+3.5	.....	.....
1899,	3 67	+46	+14.3	+\$0 06	+1.7

BLACK PLATE PRODUCTION BY COUNTIES, 1899.

PRODUCTION AND RELATIVE PER CENT. BY COUNTIES OF BLACK PLATE PRODUCED AT THE BLACK PLATE WORKE, PICKLED AND READY FOR TINNING.

Counties.	Net Tons.	Per cent.
Lawrence,	76,036	41.26
Allegheny,	36,758	19.94
Westmoreland,	34,319	18.62
Washington,	12,362	6.71
Fayette,	8,143	4.42
Dauphin,	6,188	3.36
Philadelphia,	4,885	2.65
Camrbia,	2,390	1.30
Indiana,	1,864	1.01
Beaver,	800	.43
Armstrong,	555	.30
	<hr/>	<hr/>
	184,300	100.00
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PRODUCTION OF TIN AND TERNE PLATE IN 1899 AT THE
BLACK PLATE WORKS BY COUNTIES, AND RELATIVE
PER CENT.

Counties.	Net Tons.	Per cent.
Lawrence,	48,940	33.50
Westmoreland,	37,141	25.42
Allegheny,	34,559	23.66
Fayette,	9,112	6.24
Washington,	7,346	5.03
Philadelphia,	3,904	2.67
Indiana,	2,225	1.52
Cambria,	1,451	1.00
Dauphin,	850	.58
Armstrong,	555	.38
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	146,083	100.00
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TIN AND TERNE PLATE BY COUNTIES (DIPPING WORKS).

RELATIVE PER CENT. BY COUNTIES OF TIN AND TERNE PLATE PRO-
DUCED 1899 BY THE DIPPING WORKS. (BUY THEIR BLACK PLATE.)

Counties.	Net Tons.	Per cent.
Philadelphia,	13,412	68.93
Allegheny,	4,527	23.26
Montgomery,	1,520	7.81
	<hr/>	<hr/>
	19,459	100.00
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TOTAL TIN PLATE BY COUNTIES.

PRODUCTION AND RELATIVE PER CENT. BY COUNTIES OF TIN AND
TERNE PLATE PRODUCED BY THE BLACK PLATE WORKS AND DIP-
PING WORKS COMBINED, 1899.

Counties.	Net Tons.	Per cent.
Lawrence,	48,940	29.56
Allegheny,	39,086	23.61
Westmoreland,	37,141	22.44
Philadelphia,	17,316	10.47
Fayette,	9,112	5.50
Washington,	7,346	4.44
Indiana,	2,225	1.34
Cambria,	1,451	.88
Montgomery,	1,520	.92
Dauphin,	851	.51
Armstrong,	555	.33
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	165,542	100.00
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COTTON AND WOOL MANUFACTURE FOR 1899.

COTTON AND WOOLEN YARNS AND FABRICS.

Total number of establishments engaged in the manufacture during 1899,	24
Total amount of capital,	\$1,286,179
Total number of spindles,	65,637
Total number of sets cards,	93
Total number of pickers,	39
Total number of garnets,	3
Average number of employes, 822:	
Males over 16 years,	516
Females over 16 years,	183
Children between the ages of 13 and 16,	123
Aggregate wages paid, \$302,163:	
Males,	\$214,905
Females,	58,097
Children,	29,161
Total production in pounds,	10,590,945
Total value of production,	1,708,232
Average number of days in operation,	262
Average yearly earnings:	
Males,	\$416 48
Females,	319 47
Children,	237 08
Average daily wage:	
Males,	1 59
Females,	1 21
Children,	90

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

COTTON YARNS AND FABRICS.

Total number of establishments engaged in the manufacture during 1899,	27
Total amount of capital,	\$2,768,321
Total number of power looms,	492
Total number of hand looms,	13
Total number of spindles,	153,739
Total number of sets cards,	728
Total number of combs,	40
Total number of pickers,	65
Total number of sewing machines,	4
Total number of garnets,	1
Average number of employes, 2,126:	
Males over 16 years,	936
Females over 16 years,	795
Children between the ages of 13 and 16.	395
Aggregate wages paid, \$667,156:	
Males,	\$375,263
Females,	222,683
Children,	69,210
Total value of production,	\$3,120,592
Total production in pounds,	19,328,126
Average number of days in operation,	295
Average yearly earnings:	
Males,	\$400 92
Females,	280 10
Children,	175 22
Average daily wage:	
Males,	1 36
Females,	95
Children,	59

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

WOOLEN YARNS AND FABRICS.

Total number of establishments engaged in the manufacture, 1899,	73
Total amount of capital,	\$7,811,371
Total number of power looms,	61
Total number of hand looms,	12
Total number of spindles,	233,266
Total number of sets cards,	478
Total number of combs,	271
Total number of pickers,	115
Total number of knitting machines,	18
Total number of sewing machines,	13
Total number of garnets,	28
Average number of employes, 6,724:	
Males over 16 years,	2,500
Females over 16 years,	2,979
Children between 13 and 16,	1,245
Aggregate wages paid, \$2,025,511:	
Males,	\$1,137,090
Females,	691,789
Children,	196,632
Total production in pounds, wool,	48,330,019
Total value of production,	\$15,230,770
Average number of days in operation,	282
Average yearly earnings:	
Males,	\$454 84
Females,	232 22
Children,	157 94
Average daily wage:	
Males,	1 61
Females,	82
Children,	56

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

COTTON FABRICS.

Total number of establishments engaged in the manufacture during 1899.	17
Total amount of capital,	\$2,559,527
Total number of power looms,	3,865
Total number of spindles,	81,334
Total number of sets cards,	214
Total number of pickers,	28
Total number of sewing machines,	3
Total number of garnets,	2
Average number of employes, 2,756:	
Males over 16 years,	1,008
Females over 16 years,	1,500
Children between the ages of 13 and 16,	248
Aggregate wages paid, \$922,775:	
Males,	\$448,190
Females,	438,104
Children,	36,481
Total production in pounds,	13,437,393
Total production in yards,	37,361,113
Total value of production,	\$3,219,971
Average number of days in operation,	275
Average yearly earnings:	
Males,	\$444 63
Females,	292 07
Children,	147 10
Average daily wage:	
Males,	1 62
Females,	1 06
Children,	53

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

TAPE, BRAID, WEBBING, TRIMMINGS, ETC.

Total number of establishments engaged in the manufacture during 1899,	21
Total amount of capital,	\$1,775,287
Total number of power looms,	1,494
Total number of hand looms,	28
Total number of spindles,	12,075
Total number of sets cards,	14
Total number of combs,	10
Total number of knitting machines,	104
Total number of sewing machines,	40
Total number of ribbers,	6
Total number of braiders,	3,006
Average number of employes, 2,689:	
Males over 16 years,	566
Females over 16 years,	1,837
Children between the ages of 13 and 16,	286
Aggregate wages paid, \$804,578:	
Males,	274,859
Females,	487,029
Children,	42,690
Total production in pounds, cotton,	3,453,700
Total value of production,	\$5,091,910
Average number of days in operation,	301
Average yearly earnings:	
Males,	\$485 62
Females,	265 12
Children,	149 27
Average daily wage:	
Males,	1 61
Females,	88
Children,	50

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

CURTAINS AND UPHOLSTERY GOODS.

Total number of establishments engaged in the manu- facture during 1899,	34
Total amount of capital,	\$4,185,815
Total number of power looms,	1,672
Total number of hand looms,	107
Total number of spindles,	27,307
Total number of sets cards,	92
Total number of pickers,	8
Total number of knitting machines,	21
Total number of sewing machines,	249
Total number of braiders,	580
Average number of employees, 4,934:	
Males over 16 years,	2,336
Females over 16 years,	1,932
Children between the ages of 13 and 16,	666
Aggregate wages paid, \$1,916,810:	
Males,	\$1,267,166
Females,	530,637
Children,	119,007
Total production in pounds, cotton,	12,256,438
Total value of production,	\$8,037,194
Average number of days in operation,	293
Average yearly earnings:	
Males,	\$542 45
Females,	274 66
Children,	178 69
Average daily wage:	
Males,	1 85
Females,	94
Children,	61

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

DAMASKS, COVERS, ETC.

Total number of establishments engaged in the manufacture during 1899,	25
Total amount of capital,	\$1,494,842
Total number of power looms,	1,689
Total number of hand looms,	210
Total number of spindles,	28,391
Total number of sets cards,	106
Total number of pickers,	7
Total number of sewing machines,	49
Average number of employes, 1,677:	
Males over 16 years,	1,000
Females over 16 years,	561
Children between the ages of 13 and 16,	116
Aggregate wages paid, \$635,601:	
Males,	\$437,884
Females,	179,135
Children,	18,582
Total production in pounds,	4,890,768
Total value of production,	1,844,525
Average number of days in operation,	298
Average yearly earnings:	
Males,	\$437 84
Females,	319 31
Children,	160 10
Average daily wage:	
Males,	1 47
Females,	1 07
Children,	54

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

DRESS GOODS.

Total number of establishments engaged in the manu- facture during 1899,	30
Total amount of capital,	\$3,149,940
Total number of power looms,	6,582
Total number of hand looms,	326
Total number of spindles,	47,633
Total number of sets cards,	116
Total number of combs,	7
Total number of pickers,	16
Total number of sewing machines,	5
Total number of garnets,	1
Average number of employees, 5,543:	
Males over 16 years,	2,533
Females over 16 years,	2,536
Children between the ages of 13 and 16,	474
Aggregate wages paid, \$2,028,529:	
Males,	\$1,073,010
Females,	851,319
Children,	104,200
Total production in pounds, cotton,	6,781,868
Total production in pounds, wool,	37,740,937
Total value of production,	\$9,878,670
Average number of days in operation,	298
Average yearly earnings:	
Males,	\$423 61
Females,	335 69
Children,	219 83
Average daily wage:	
Males,	1 42
Females,	1 13
Children,	74

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

KNIT GOODS—UNDERWEAR.

Total number of establishments engaged in the manufacture in 1899,	103
Total amount of capital,	\$3,743,349
Total number of power looms,	135
Total number of hand looms,	414
Total number of spindles,	21,728
Total number sets of cards,	64
Total number of combs,	20
Total number of pickers,	14
Total number of knitting machines,	3,401
Total number of sewing machines,	3,812
Total number of ribbers,	519
Total number of garnets,	11
Total number of braiders,	127
Average number of employees, 7,442:	
Males over 16 years,	1,689
Females over 16 years,	5,020
Children between the ages of 13 and 16 years,	733
Aggregate wages paid, \$2,010,352:	
Males,	\$713,670
Females,	1,195,440
Children,	101,242
Total production in pounds, cotton,	11,993,025
Total production in pounds, wool,	6,988,669
Total production in dozens, cotton,	2,815,697
Total production in dozens, wool,	357,577
Total value of production,	\$10,326,566
Average number of days in operation,	291
Average yearly earnings:	
Males,	\$422 54
Females,	238 14
Children,	138 12
Average daily wage:	
Males,	1 45
Females,	82
Children,	47

COTTON AND WOOL MANUFACTURE FOR 1899—Continued

HOSIERY.

Total number of establishments engaged in the manufacture, 1899,	177
Total amount of capital,	\$5,497,850
Total number of power looms,	125
Total number of spindles,	15,928
Total number of sets cards,	56
Total number of combs,	20
Total number of pickers,	11
Total number of knitting machines,	18,098
Total number of sewing machines,	1,718
Total number of ribbers,	4,536
Total number of garnets,	11
Total number of braiders,	1
Total number of loopers,	457
Average number of employes, 16,089:	
Males over 16 years,	2,640
Females over 16 years,	9,969
Children between the ages of 13 and 16 years,	3,480
Aggregate wages paid, \$3,799,881:	
Males,	\$1,111,949
Females,	2,228,175
Children,	459,757
Total production in pounds, cotton,	24,310,345
Total production in pounds, wool,	474,445
Total production in dozens, cotton,	15,128,799
Total production in dozens, wool,	200,629
Total value of production,	\$12,396,230
Average number of days in operation,	289
Average yearly earnings:	
Males,	\$421 19
Females,	223 51
Children,	132 11
Average daily wage:	
Males,	1 46
Females,	77
Children,	46

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

CASSIMERES AND WORSTEDS.

Total number of establishments engaged in the manufacture during 1899,	54
Total amount of capital,	\$7,531,114
Total number of power looms,	6,351
Total number of hand looms,	97
Total number of spindles,	137,582
Total number of sets cards,	425
Total number of combs,	40
Total number of pickers,	77
Total number of knitting machines,	62
Total number of garnets,	16
Average number of employees, 8,771:	
Males over 16 years,	4,156
Females over 16 years,	3,924
Children between the ages of 13 and 16,	691
Aggregate wages paid, \$2,992,691:	
Males,	\$1,834,153
Females,	1,047,536
Children,	111,002
Total production in pounds, cotton,	10,561,444
Total production in pounds, wool,	12,407,835
Total production in yards,	39,131,299
Total value of production,	\$12,435,303
Average number of days in operation,	295
Average yearly earnings:	
Males,	\$411 33
Females,	266 96
Children,	160 64
Average daily wage:	
Males,	1 50
Females,	90
Children,	54

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

PLUSHES, MOHAIRS, ETC.

Total number of establishments engaged in the manu- facture during 1899,	5
Total amount of capital,	\$314,878
Total number of power looms,	279
Total number of sewing machines,	19
Average number of employes, 637:	
Males over 16 years,	333
Females over 16 years,	266
Children between the ages of 13 and 16,	38
Aggregate wages paid, \$268,078:	
Males,	\$153,135
Females,	106,769
Children,	8,174
Total production in pounds,	2,668,460
Total value of production,	\$881,734
Average number of days in operation,	304
Average yearly earnings:	
Males,	\$459 86
Females,	401 39
Children,	215 11
Average daily wage:	
Males,	1 51
Females,	1 32
Children,	71

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

BLANKETS, FLANNELS, ETC.

Total number of establishments engaged in the manufacture during 1899,	51
Total amount of capital,	\$2,230,657
Total number of power looms,	898
Total number of hand looms,	24
Total number of spindles,	23,567
Total number of sets cards,	139
Total number of combs,	4
Total number of pickers,	72
Total number of knitting machines,	20
Total number of sewing machines,	201
Total number of ribbers,	1
Total number of garnets,	6
Total number of braiders,	77
Average number of employes, 3,193:	
Males over 16 years,	1,999
Females over 16 years,	896
Children between the ages of 13 and 16,	298
Aggregate wages paid, \$1,182,589:	
Males,	\$826,388
Females,	302,748
Children,	53,453
Total production in pounds, cotton,	5,702,081
Total production in pounds, wool,	20,088,945
Total value of production,	4,436,385
Average number of days in operation,	286
Average yearly earnings:	
Males,	\$413 40
Females,	337 89
Children,	179 37
Average daily wage:	
Males,	1 45
Females,	1 18
Children,	63

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

CARPETS.

Total number of establishments engaged in the manufacture during 1899,	102
Total amount of capital,	\$10,578,450
Total number of power looms,	6,389
Total number of hand looms,	533
Total number of spindles,	35,141
Total number of sets cards,	119
Total number of combs,	21
Total number of pickers,	33
Total number of sewing machines,	161
Total number of garnets,	2
Total number of braiders,	1
Average number of employes, 11,826:	
Males over 16 years,	6,147
Females over 16 years,	5,094
Children between the ages of 13 and 16,	585
Aggregate wages paid, \$4,510,546:	
Males,	\$2,954,659
Females,	1,467,447
Children,	88,440
Total production in pounds, cotton,	18,881,953
Total production in pounds, wool,	44,383,847
Total production in yards,	44,066,701
Total value of production,	\$20,494,153
Average number of days in operation,	296
Average daily wage:	
Males,	\$480 67
Females,	288 07
Children,	151 18
Average daily earnings:	
Males,	1 64
Females,	97
Children,	51

COTTON AND WOOL MANUFACTURE FOR 1899.

MISCELLANEOUS.

Total number of establishments engaged in the manufacture during 1899,	38
Total amount of capital,	\$1,814,258
Total number of power looms,	2,646
Total number of hand looms,	6
Total number of spindles,	14,220
Total number of sets cards,	10
Total number of pickers,	5
Total number of knitting machines,	79
Total number of sewing machines,	478
Total number of garnets,	8
Total number of braiders,	706
Average number of employes, 2,369:	
Males over 16 years,	1,003
Females over 16 years,	1,263
Children between the ages of 13 and 16,	103
Aggregate wages paid, \$877,279:	
Males,	\$459,200
Females,	402,260
Children,	15,819
Total production in pounds,	12,320,797
Total value of production,	\$5,196,056
Average number of days in operation,	295
Average yearly earnings:	
Males,	\$457 83
Females,	318 50
Children,	153 58
Average daily wage:	
Males,	1 55
Females,	1 08
Children,	52

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

HATS.

Total number of establishments engaged in the manu- facture during 1899,	11
Total amount of capital,	\$305,765
Total number of sets cards	46
Total number of pickers,	15
Total number of sewing machines,	130
Average number of employes, 752:	
Males over 16 years,	435
Females over 16 years,	239
Children between the ages of 13 and 16,	78
Aggregate wages paid, \$203,902:	
Males,	\$149,851
Females,	46,604
Children,	7,447
Total production in pounds, wool,	815,587
Total production in dozens,	270,511
Total value of production,	\$959,049
Average number of days in operation,	249
Average yearly earnings:	
Males,	\$344 49
Females,	195 00
Children,	95 47
Average daily wage:	
Males,	1 38
Females,	78
Children,	38

COTTON AND WOOL MANUFACTURE FOR 1899—Continued.

SHODDY AND WASTE.

Total number of establishments engaged in the manu- facture, 1899,	21
Total amount of capital,	\$442,500
Total number sets cards,	75
Total number of combs,	2
Total number of pickers,	53
Total number of garnets,	25
Average number of employes, 310:	
Males over 16 years,	253
Females over 16 years,	41
Children between the ages of 13 and 16 years,	16
Aggregate wages paid, \$117,703:	
Males,	\$104,144
Females,	10,725
Children,	2,834
Total production in pounds wool,	22,530,553
Total value of production,	\$1,593,442
Average number of days in operation,	274
Average yearly earnings:	
Males,	\$411 64
Females,	261 59
Children,	177 12
Average daily wage:	
Males,	1 50
Females,	95
Children,	65

SUMMARY OF COTTON AND WOOL MANUFACTURE FOR 1899.

Total number of establishments engaged in the manu- facture during 1899,	813
Total amount of capital,	\$57,493,103
Total number of power looms,	33,456
Total number of hand looms,	1,788
Total number of spindles,	911,792
Total number of sets cards,	2,838
Total number of combs,	439
Total number of pickers,	592
Total number of knitting machines,	21,775
Total number of sewing machines,	6,999
Total number of ribbers,	5,062
Total number of garnets,	119
Total number of braiders,	4,573
Total number of loopers,	457
Average number of employes, 78,660:	
Males over 16 years,	30,050
Females over 16 years,	39,035
Children between the ages of 13 and 16,	9,575
Aggregate wages paid, \$25,266,144:	
Males,	\$13,535,516
Females,	10,266,497
Children,	1,464,131
Total production in pounds, cotton,	180,441,351
Total production in pounds, wool,	172,795,284
Total value of production,	\$116,850,782
Average number of days in operation,	291
Average yearly earnings:	
Males,	\$450 43
Females,	263 01
Children,	152 91
Average daily wage:	
Males,	1 55
Females,	90
Children,	53



ANALYSIS.

On pages 113 to 259 inclusive will be found the 1892 Comparative Series tables. This is a presentation of forty-four industries, representing 354 establishments. The same establishments are carried through from 1892, and comparison is made year by year of the days of operation, the persons employed, the aggregate of wages paid, the yearly earnings, the daily wage, and the market value of the output.

DAYS OF OPERATION.

It will be seen that 26 of the 44 industries, representing 252 of the 354 establishments, had increases over 1898 in the days of operation; that 6 of the 44 industries, representing 31 of the 354 establishments, had the same days of operation as in 1898, and that the remaining 12 industries, representing the remaining 71 establishments, had decreases in days of operation from 1898. Each of the years, however, had almost full time, 1898 having 298 days, and 1899 301 days. The following comparison of days of operation with 1894, a period of five years, will be of interest.

Industries.	Days of Operation.		Increase in days.	Decrease in days.
	1894.	1899.		
Pig iron,	301	322	21	....
Rolling mills,	300	308	8	....
Sheets and plates,	267	294	27	....
Plate and bar,	232	302	70	....
Steel,	272	285	13	....
Architectural cast and wrought iron work,	307	305	....	2
Iron forgings,	296	295	....	1
Nails and spikes,	228	229	1	....
Nuts and bolts,	288	304	16	....
Pipes and tubes,	268	279	11	....

DAYS OF OPERATION—Continued.

Industries.	Days of Operation.		Increase in days.	Decrease in days.
	1894.	1899.		
Foundries and machine works,	282	305	23	....
Stoves, ranges, heaters, etc.,	210	247	37	....
Hardware,	205	268	63	....
Malleable iron,	247	292	45	....
Saws, edge tools, etc.,	286	301	15	....
Metal and metallic goods,	288	324	36	....
Locomotives and engines,	267	306	39	....
Engines and boilers,	298	303	5	....
Boilers,	220	307	87	....
Bridges,	305	284	....	21
Car springs,	255	300	45	....
Car couplers,	203	303	100	....
Cars and car wheels,	261	304	43	....
Window glass, bottle and table goods,	261	264	3	....
Ship building,	310	302	....	8
Pianos and organs,	259	300	41	....
Rubber boots and shoes,	248	243	....	5
Carbons,	300	290	....	10
Carpets,	259	299	40	....
Woolen yarns,	277	274	....	3
Cotton yarns,	261	306	45	....
Worsted yarns,	277	290	13	....
Miscellaneous yarns,	262	275	13	....
Woolen goods,	278	287	9	....
Cotton goods,	246	299	53	....
Cotton and woolen goods,	258	274	16	....
Worsted goods,	237	295	58	....
Knit goods,	254	282	28	....
Chenille goods,	299	292	....	7
Mixed textiles,	289	300	11	....
Tapestry and table covers,	300	277	....	23
Hosiery,	273	280	7	....
Silk broad goods,	292	301	9	....
Hosiery and knit goods,	300	300	....	....

PERSONS EMPLOYED.

The total number of persons employed in this series for 1899 was 154,422, or 16,437 more persons than were employed in 1898. Nine industries show a loss from 1898 of 795 persons, leaving a gain for the remaining thirty-five industries of 17,232 persons. Going back for

five years, and making comparison with 1894, it will be seen as shown by the following table that few industries were exempt from increases, and that in many instances the increase was so large as to be almost phenomenal.

Industries.	Persons Employed.		Increase in per- sons.	Decrease in per- sons.
	1894.	1899.		
Pig iron,	1,751	3,015	1,264	....
Rolling mills,	30,120	43,533	13,413	....
Iron and steel sheets and plates, ...	4,294	8,327	4,033	....
Plate and bar,	1,735	2,709	974	....
Steel,	9,778	14,578	4,800	....
Architectural cast and wrought iron work,	976	1,755	779	....
Iron forgings,	469	670	201	....
Nails and spikes,	2,305	2,360	55	....
Nuts and bolts,	560	955	395	....
Pipes and tubes,	1,263	1,720	457	....
Foundries and machine works,	2,603	4,091	1,488	....
Stoves, ranges, heaters, etc.,	1,238	1,304	66	....
Hardware,	1,464	1,926	462	....
Malleable iron,	293	746	453	....
Saws, edge tools, etc.,	1,965	3,079	1,114	....
Metal and metallic goods,	1,500	1,809	309	....
Locomotives and engines,	8,441	11,795	6,354	....
Engines and boilers,	992	1,409	417	....
Boilers,	691	512	....	179
Bridges,	647	975	328	....
Car springs,	108	177	69	....
Car couplers,	416	905	489	....
Cars and car wheels,	2,830	3,184	354	....
Window glass, bottle and table goods,	5,152	5,979	827	....
Ship building,	395	915	520	....
Pianos and organs,	162	120	....	42
Rubber boots and shoes,	350	500	150	....
Carbons,	55	38	....	17
Carpets,	5,326	6,178	852	....
Woolen yarns,	1,148	1,706	558	....
Cotton yarns,	270	264	....	6
Worsted yarns,	722	838	116	....
Miscellaneous yarns,	418	453	35	....
Woolen goods,	4,856	4,350	....	506
Cotton goods,	3,687	4,296	609	....
Cotton and woolen goods,	1,248	1,262	14	....

PERSONS EMPLOYED—Continued.

Industries.	Persons Employed.		Increase in per- sons.	Decrease in per- sons.
	1894.	1899.		
Worsted goods,	461	597	136	....
Knit goods,	807	1,004	197	....
Chenille goods,	1,176	1,614	438	....
Mixed textiles,	1,847	2,431	584	....
Tapestry and table covers,	229	492	263	....
Hosiery,	2,589	3,204	615	....
Hosiery and knit goods,	600	456	....	144
Silk broad goods,	1,446	3,191	1,745	....
Totals,	109,383	154,422	45,933	894

Net increase 45,039 persons, or 41.2 per cent.

AGGREGATE WAGES.

Seventy-eight million, one hundred and seventy-nine thousand, three hundred and thirty-three dollars were paid out in wages to the 154,422 persons represented by this series in 1899, as against \$62,676,615 in 1898; as against \$67,331,876 in 1892, the year of our previous greatest prosperity, and as against \$45,229,667 in 1894, the year of our greatest depression; being an increase, 1899 over 1898, of \$15,502,718, or 24.73 per cent; an increase, 1899 over 1892, of \$10,847,457, or 16.11 per cent.. and an increase, 1899 over 1894, of \$32,949,666, or 72.85 per cent.

AVERAGE YEARLY EARNINGS.

The average yearly earnings of the 154,422 persons employed in the various industries presented in this series, skilled and unskilled, men, women and children, was \$506.27, as against \$454.52 for the 137,985 persons employed by the same establishments in 1898, an increase of \$51.75 per year, or 11.38 per cent.; and as against \$491.90 for the 136,882 persons employed by the same establishments in 1892, an increase in favor of 1899 of \$14.37, and an increase in persons of 17,540, or 12.81 per cent. A comparison of 1899 with 1894 shows that the increase in average earnings 1899 over 1894 was \$92.77, or 22.4 per cent., with an increase in persons of 45,039, or 41.2 per cent.

A better understanding can be had of the increase in earnings, 1899

over 1894, by a glance at the following table. These 35 industries are made up of 329 representative establishments, and comparison is made with the same establishments as are considered for 1894.

Industries.	Average individual earnings.		Increases, 1899 over 1894.	
	1894.	1899.	Amount.	Per cent.
Pig iron,	\$382 09	\$498 24	\$116 15	30.4
Rolling mills,	482 65	605 72	123 07	25.5
Iron and steel sheets and plates, ...	524 31	574 18	49 87	9.5
Steel,	459 41	517 24	57 83	12.6
Plate and bar,	401 71	513 21	111 50	27.7
Architectural iron work,	500 19	553 31	53 12	10.6
Iron forgings,	506 31	557 84	51 53	10.2
Nuts and bolts,	372 95	545 22	172 27	46.2
Pipes and tubes,	406 38	483 52	77 14	19
Foundries and machine works,	504 53	537 35	32 82	6.5
Stoves, ranges, heaters, etc.,	425 06	487 28	62 22	14.6
Hardware,	337 79	391 42	53 63	15.9
Malleable iron,	442 44	521 83	79 39	17.9
Saws, edge tools, etc.,	444 05	514 40	70 35	15.8
Metal and metallic goods,	450 35	495 36	45 01	10
Locomotives and engines,	477 72	594 65	116 93	24.4
Boilers,	319 23	464 53	145 30	45.5
Car springs,	459 85	729 46	269 61	58.6
Car couplers,	386 96	496 13	109 17	28.2
Cars and car wheels,	456 65	553 78	97 13	21.3
Window glass, bottle and table goods,	430 73	456 02	25 29	5.9
Pianos and organs,	285 10	444 19	159 09	55.8
Woolen yarns,	249 61	307 46	57 85	23.2
Cotton yarns,	262 90	329 70	66 80	25.4
Worsted yarns,	270 20	285 88	15 68	5.8
Miscellaneous yarns,	330 31	378 27	47 96	14.5
Carpets,	355 30	373 53	18 23	5.1
Cotton goods,	317 75	351 08	33 33	10.5
Woolen goods,	286 00	344 42	58 42	20.4
Worsted goods,	344 35	405 67	61 32	17.8
Cotton and woolen goods,	290 19	323 06	32 87	11.3
Mixed textiles,	287 86	315 05	27 19	9.4
Chenille goods,	376 55	421 29	44 74	11.9
Knit goods,	254 93	287 28	32 35	12.7
Hosiery,	219 16	252 76	33 60	15.3

VALUE OF PRODUCT.

If 1899 has shown a remarkable increase in the number of workmen employed and the wages paid, the value of the production shows a like wonderful increase. The aggregate for 1899 reached the unprecedented figures of \$377,934,411, an increase over 1898 of \$111,889,881, or 42.06 per cent. Over 1892 the once most prosperous year of our series, but now eclipsed by 1899, the increase was \$108,481,946, or 40.26 per cent., and over 1894, the year of our greatest depression, the increase swelled to \$192,307,440, or 103.6 per cent.

To recapitulate as to wages and persons, these 44 diversified industries gave employment to 17,540 more persons in 1899 than the same industries and the same establishments gave employment to in the prosperous year of 1892, an increase of nearly 13 per cent. The individual earnings, whether skilled or unskilled, men, women or children, were \$506.27, as against \$491.90 in 1892, or an increase of about 3 per cent. These same establishments gave employment to 45,039 more persons in 1899 than they did in 1894, or an increase of over 41 per cent., and at an increase in yearly earnings of \$92.77, or over 22 per cent., thus showing conclusively 1899 to have been the banner year of our 1892 series.

1896 SERIES.

This comparative series follows the 1892 series, and represents 93 industries and 855 establishments. In this series, in addition to time, wages and value of the production, inquiry is made as to the capital invested, the cost of the basic material, and the production; and, as in the 1892 series, comparison is made with the preceding years, always using the same establishments. In both series, if for any cause an establishment is dropped, it is eliminated from the preceding years, substitution not being allowed, and this accounts for the changes occurring from time to time in the number of establishments considered. As, for instance, this series was started in 1896 with 101 industries representing 919 establishments, and now for 1899 we have but 93 industries representing 855 establishments. As a result, the 64 establishments are eliminated from all of the preceding years back to and including 1896, the remaining 855 forming the basis for comparison for the years 1896, 1897, 1898 and 1899.

CAPITAL INVESTED.

The capital invested in these 855 establishments advanced since 1896 from \$205,383,913, to \$245,877,826 in 1899, the heaviest increase being from 1898 to 1899, when it advanced nearly 15 per cent.

BASIC MATERIAL.

It will be noticed that the cost of the material out of which the production was made had a practically uniform advance until 1899, when it showed an advance over 1898 of more than 42 per cent. It will also be noticed that while in 1896 the cost of the basic material was only a little over ninety-six million dollars, in 1899 it was over one hundred and sixty-nine million dollars, an advance of nearly 76 per cent.

DAYS OF OPERATION.

In 1896 the days of operation were 268; in 1897 they were 276; in 1898 they increased to 286, and in 1899 to 288; a difference of 20 days in favor of 1899 over 1896.

NUMBER OF WAGE EARNERS EMPLOYED.

From 1896 to 1899 an advance is shown in the number of working people employed in these 855 industries, of 43.7 per cent. The number employed in 1899 having been 181,936 as against 126,578 in 1896. The increase over 1898 was 14.4 per cent., the number employed in that year having been 159,010. The average earnings for all of these 181,936 persons, skilled and unskilled, male and female, was, in 1899, four hundred and thirty-two dollars and forty-nine cents, an increase over 1898 of \$33.80, and over 1896 of \$22.68.

MARKET VALUE OF PRODUCTION.

This series represented for 1899 a large volume of business done, its value aggregating \$322,808,934, as against \$195,205,164 in 1896, an increase of \$137,603,770, or over 70 per cent.

Before leaving this series it might be well to say that no effort was made upon the part of the Bureau to lead up to the cost of production, no item of cost having been considered but the labor and the cost of that material out of which the finished product was made, general management, office help, fuel, repairs, insurance, commissions and all of the many items of expense incident to manufacture not being considered. And this remark applies to all other presentations inquiring into the cost of basic materials.

PIG IRON.

1899 marks the greatest era in the production of pig iron in the history of the State; the increase over 1898 being 1,175,019 gross tons, or nearly 30 per cent., and the increase over 1896 being 2,516,648 gross tons or 62.5 per cent. Pennsylvania's production of 6,542,998 gross tons in 1899 was within about 30 per cent. of the entire production of Great Britain. The entire production of the United States, ac-

cording to figures furnished by the American Iron and Steel Association was 13,626,703 gross tons, an excess over the production of Great Britain of more than 46 per cent.

These figures are very significant when it is reflected that in 1894, just five years ago, Great Britain produced nearly twelve per cent. more pig iron than was produced in the United States, and that in 1899 her increase in production over 1894 was but little over 25 per cent., while the increase on the part of the United States was over one hundred per cent.

VALUE.

The value of Pennsylvania's production of pig iron for 1899 was close to a hundred million dollars, the realized value being \$98,203,803. We have made the distinction between realized and market value for 1899 for the reason that for this year there was an exceptional number of long contracts at prices much below the actual value, many of them running well through the year. It is possible that \$16.50 instead of the realized value of \$15.01, as set forth in our tables, would come nearer the f. o. b. value at the furnaces. While these long contracts at low prices were to the detriment of the producers, on the other hand they had the advantage of long contracts on ore at prices little in advance of 1898. As compared with 1898, the increase in aggregate value was \$44,872,575, or 84.1 per cent., and as compared with 1896 the increase was \$53,031,764, or 117.4 per cent. The increase in value per ton over 1898 was \$5.07, or 51 per cent., and over 1896, \$3.80 or 33.9 per cent.

DAYS OF EMPLOYMENT.

While the days of employment for 1899 were 38 in excess of 1896, they were 9 days short of 1898. This is accounted for owing to the many idle furnaces started up after the year had well advanced, and thus reducing what would otherwise have been an exceptionally full year. The average for 1899 was 327 days.

NUMBER EMPLOYED.

An average of 15,347 workmen were employed in the making of pig iron during 1899, an increase over 1898 of 3,436, or 28.8 per cent., and an increase over 1896 of 3,767 or 32.5 per cent.

EARNINGS OF WORKMEN.

The average earnings in 1899 for skilled and unskilled labor was nearly one hundred dollars in excess of 1896, the average for 1899 being \$495.18 and for 1896 but \$396.30. The average over 1898 was \$52.86. The average daily wage was \$1.51, an increase over 1898 of 19 cents per day and over 1896 of 14 cents per day.

STEEL.

Pennsylvania produced 6,446,159 gross tons steel of all kinds in 1899, an increase of 22.2 per cent. over 1898, and 92.7 per cent. over 1896, or nearly double. According to the report of the American Iron and Steel Association the production of the United States, for 1899 was 10,639,857 gross tons, and Great Britain about 5,000,000 tons. Pennsylvania consequently produced over 60 per cent. of the production of the United States, and about 29 per cent. more than Great Britain.

In detail, Pennsylvania produced in 1899, 3,971,835 gross tons of bessemer, an increase over 1898 of 18.3 per cent. and over 1896 of 73.2 per cent. She produced of open hearth 2,398,210 gross tons, an increase over 1898 of 29.7 per cent. and over 1896 of 137.5 per cent. Of crucible and miscellaneous steel she produced 76,114 gross tons, an increase over 1898 of 9.4 per cent. and over 1896 of 76.6 per cent.

If in steel, Pennsylvania is increasing her ratio of production to the United States, the United States is increasing her ratio as relative to Great Britain. Going back for five years, as was done in pig iron, we find the total production of all kinds of steel in the United States for 1894, was 4,412,032 gross tons as against 3,210,702 gross tons in Great Britain, an increase over Great Britain of 1,201,330 gross tons or 37 per cent. For 1899 Great Britain had a production in round numbers of 5,000,000 gross tons as against a production in the United States of 10,639,857 gross tons, or an increase in favor of the United States of over 112 per cent. From these figures it will be seen that the increase in production of steel in the United States for the past five years has been 141 per cent., while Great Britain's increase has been but about 55 per cent.

IRON AND STEEL ROLLED INTO FINISHED FORM—PRODUCTION.

While the ratio of production one year with another as set forth on pages 518 to 520 is consistent with our general tabulation, yet to arrive at the actual increase, 1899 over former years, 164,439 tons of black plate must be added to the production of sheets and plates, increasing that classification to 1,396,778 tons, and increasing the entire production of iron and steel rolled into finished form to 7,093,485 net tons, thus making the actual increase, 1899 over 1898, 1,556,236 tons, or over 28 per cent., and making an increase of 3,336,415 tons over 1896, or nearly 89 per cent.

VALUE.

The value of this enormous production after adding for the black plate referred to would be \$233,377,126, an increase in the aggregate value over 1898 of \$96,556,684, and an increase over 1896 of \$114,347,364.

WORKMEN EMPLOYED.

The number of workmen, independent of those employed in the rolling of black plate, was in 1899, 69,982, an increase over 1896 of 16,409, or 30.6 per cent.

EARNINGS.

The average earnings of the 69,982 workmen, skilled and unskilled, was \$559 as against \$495.81 in 1898, and as against \$444.89 in 1896, an increase, 1899 over 1896, of \$114.11, or 25.6 per cent. The average daily wage was \$1.95, an increase over 1896 of 10.2 per cent.

This will not cover the advances that were made in wages during 1899, since as they were made during the spring and summer after the year was well advanced it will readily be seen that their full force would not appear as relative to the entire year.

TIN PLATE.

Pennsylvania had 21 black plate works in operation during the whole or part of 1899, 18 of which turned out a tinned production. 368,600,734 pounds of black plate was made as against 344,004,000 pounds in 1898, and as against 158,306,490 pounds in 1896, an increase, 1899 over 1896, of 210,294,244 pounds, or 132.8 per cent.

Pennsylvania's increase in tinned production has been equally as satisfactory as her increase in black plate, the aggregate tinned production for 1899 of the black plate works and dipping works, being 331,082,734 pounds, as against 262,934,000 pounds in 1898, an increase of 68,148,734 pounds, or 25.9 per cent., and as against 139,588,703 pounds in 1896, an increase of 191,494,031 pounds, or 137.2 per cent. Pennsylvania's share of the entire production of the United States of tin and terne plate for 1899, which has been placed at 891,000,000 pounds, and which the Bureau believes to be practically correct, was about 37 per cent. Comparing this production of the United States for 1899 with the production of 1894, 166,343,409 pounds, it will be seen that the increase in the past five years has been 724,656,591 pounds, or 435 per cent.

PERSONS EMPLOYED, WAGES, ETC.

While the number of workmen employed in the black plate works was increased from 3,194 in 1896, and 5,036 in 1898 to 7,682 in 1899, an increase over 1898 of 52.5 per cent. and over 1896 of 140.5 per cent., and their average daily wage was increased from \$2.10 in 1898, and \$1.80 in 1896 to \$2.36 in 1899. the days of employment were reduced from 278 in 1898, and 250 in 1896 to 223 in 1899. This was, perhaps, largely due to the disorganization attendant upon the change in ownerships which occurred with nearly all the plants during 1899.

BLACK PLATE WORKS AND DIPPING WORKS.

It will be observed that in addition to Pennsylvania's 21 black plate works, she had 7 dipping works in operation during 1899, making with the 18 black plate works that turned out a tinued production, 25 plants making a finished product of tin and terne plate. It will be noticed that while the figures given of tin plate from year to year are not a comparison of the same establishments, but a census work of the State, from 1896 forward there has been the uniform number of 25 establishments turning out a tinued production. This is accounted for from the fact that the increase in the number of black plate plants turning out a tinued production, has been offset by a remarkable coincidence—an exact falling off in the number of dipping establishments. While dipping works are usually regarded as establishments that buy their black plate, it is but fair to remark that one of the most extensive dipping works in the State is now making its own black plate, but in an adjoining State, and for this reason leaving the bureau no option but to place it with the dipping establishments.

COMBINED VALUE.

The aggregate value of the 331,082,734 pounds of tin and terne plate produced by these 25 establishments for 1899 was \$12,165,879, an increase over 1898 of 44.1 per cent. and over 1896 of 141.1 per cent.

PRODUCTION AND RELATIVE PER CENT. OF PIG IRON, STEEL, IRON AND STEEL ROLLED INTO FINISHED FORM, AND TIN PLATE, BY COUNTIES.

Twenty-three counties produced pig iron in 1899 as against eighteen in 1898. Huntingdon goes out, and Westmoreland, Carbon, York, Delaware, Bucks and Montour come in. They are named in their order of production.

Allegheny still heads the list, and this year with a production of 3,278,420 tons, or 50.11 per cent., a material increase in production over 1898, but 3.18 per cent. less than her relative per cent. of production in 1898.

Perhaps the most noticeable change is the inversion of place by Lackawanna and Montgomery counties. In 1898 their relative positions were Montgomery 134,199 tons, or 2.50 per cent.; Lackawanna 96,664 tons, or 1.80 per cent. In 1899 they are reversed, and the order is Lackawanna 155,350 tons, or 2.37 per cent.; Montgomery 141,477 tons, or 2.16 per cent. The list closes with Montour, 7,923 tons, or .121 per cent.

STEEL.

Eighteen counties produced crude steel, the same number as in 1898, the only change being the substitution of Montour for Washington.

Allegheny leads with 63.68 per cent. of the entire production. Dauphin's place as third on the list has been usurped by Lackawanna. Crawford brings up the rear with .004 per cent.

ROLLED IRON AND STEEL.

In the finished rolled product, as well as in pig iron and steel, Allegheny county continues to produce more than all the balance of the State. Her percentage of the finished product for 1899 being 55.30, no other county producing as much as 7 per cent.

The order has been: Allegheny, Cambria, Dauphin, Lackawanna, etc., etc. For 1899 it is, Allegheny, Lackawanna, Cambria, Dauphin, etc., etc. Lackawanna taking second place.

BLACK PLATE, BY COUNTIES.

Black plate for tinning was made in eleven counties in 1899. (See page 529), Lawrence county leading with 41.26 per cent. of the entire production of the State, followed by Allegheny with 19.94 per cent., Westmoreland with 18.62 per cent. and Washington with 6.71 per cent. The remaining counties were under 5 per cent.

In the tinned output of the black plate works, Lawrence county produced 33.50 per cent., Westmoreland 25.42 per cent., Allegheny 23.66 per cent., Fayette 6.24 per cent., Washington 5.03 per cent. No other county reached 3 per cent.

The dipping works are confined to Philadelphia, Allegheny and Montgomery counties, and their ratio is respectively 68.93 per cent., 23.26 per cent. and 7.81 per cent.

In the combined tin plate production of black plate works and dipping works, Lawrence had 29.56 per cent., Allegheny 23.61 per cent., Washington 22.44 per cent., Philadelphia 10.47 per cent., Fayette 5.50 per cent. No other county had 5 per cent.

COTTON AND WOOL MANUFACTURE.

The presentation, pages 532 to 549 inclusive, is intended as a census of the manufacture of cotton and wool in the State for 1899. The machinery, etc., represents only the establishments in which business was done during at least some portion of the year, and the Bureau believes the information given to be reliable; and as a census work, both as to machinery and business done, is as complete as was possible to have it without a canvass of the entire State, which with the means at its command was an impossibility. The result

set forth was attained by mailing blanks to such establishments as were known to the Bureau, or as appeared in directories, some ten hundred and fifty in number, and after receiving returns from all available by correspondence, the work was followed up by personal visitations of representatives of the Bureau, till reports were secured from all establishments known to be engaged in the manufacture of cotton or wool. The tables show, in active mills, 33,456 power looms, 1,788 hand looms, 911,792 spindles, 2,838 sets cards, 439 combs, 592 pickers, 21,775 knitting machines, 6,999 sewing machines, 5,062 ribbers, 119 garnets, 4,573 braiders and 457 loopers.

In arriving at a separation of the cotton and wool, much difficulty was encountered, as in many cases they are so combined and interwoven as to make separation only a matter of approximation; but it gives the Bureau pleasure to say that as a rule manufacturers used every effort to make the most intelligent separation possible. Care was taken to eliminate jute, silk and every material foreign to cotton or wool. As a result, the tonnage, which is made the unit of calculation, may fall somewhat short of the expectation of those who have not considered the extent to which jute enters into many of the cotton and wool manufactures, notably, carpets, rugs, etc., etc.

In addition to the census work of the State, as set forth in the tables, there was made in the prisons:

116,643 yards of carpet.

1,693 yards of ticking.

88,193 dozens hosiery.

And machinery in use:

58 hand looms.

3 sewing machines.

166 knitting machines.

22 ribbers.

9 loopers.

NUMBER OF ESTABLISHMENTS.

The Bureau found 813 establishments engaged in the manufacture of cotton and wool, with a capital invested of \$57,493,103, and a total cotton production of 180,441,351 pounds, and a woollen production of 172,795,284 pounds, an aggregate of cotton and wool combined of 353,236,635 pounds, with a value of \$116,850,782.

Days of operation 291.

Total number of working people, 78,660.

Aggregate of wages paid to these working people, \$25,266,144.

For the better understanding of earnings, wages, etc., the following tables are submitted:

PERSONS, TIME, EARNINGS AND WAGES, BY CLASSIFICATION, MALES,
FEMALES AND CHILDREN IN COTTON AND WOOLEN MANUFACT-
ORIES.

MALES.

What Manufactured.	Days.	Number of males.	Average yearly earnings.	Average daily wage.
Curtains and upholstery goods,	293	2,336	\$542 45	\$1 85
Tapes, trimmings, etc.,	301	566	485 62	1 61
Carpets,	296	6,147	480 67	1 64
Plushes, mohairs, etc.,	304	333	459 86	1 51
Miscellaneous cotton and wool,	295	1,003	457 83	1 55
Woolen yarns and fabrics,	282	2,500	454 84	1 61
Cotton fabrics,	275	1,008	444 63	1 62
Cassimeres and worsteds,	295	4,156	441 33	1 50
Damasks, covers, etc.,	298	1,000	437 84	1 47
Dress goods,	298	2,533	423 61	1 42
Knit goods—underwear,	291	1,689	422 54	1 45
Hosiery,	289	2,640	421 19	1 46
Cotton and woolen yarns and fabrics,	262	516	416 48	1 59
Blankets, flannels, etc.,	286	1,999	413 40	1 45
Shoddy and waste,	274	253	411 64	1 50
Cotton yarns and fabrics,	295	936	400 92	1 36
Hats,	249	435	344 49	1 38
Totals and averages,	291	30,050	\$450 43	\$1 55

PERSONS, TIME, EARNINGS AND WAGES, BY CLASSIFICATION, MALES,
FEMALES AND CHILDREN IN COTTON AND WOOLEN MANUFACT-
ORIES—Continued.

FEMALES.

What Manufactured.	Days.	Number of fe- males.	Average yearly earnings.	Average daily wage.
Plushes, mohairs, etc.,	304	266	\$401 39	\$1 32
Blankets, flannels, etc.,	286	896	337 89	1 18
Dress goods,	298	2,536	335 69	1 13
Cotton and woolen yarns, and fabrics,	262	183	319 47	1 21
Damasks, covers, etc.,	298	561	319 31	1 07
Miscellaneous cotton and wool,	295	1,263	318 50	1 08
Cotton fabrics,	275	1,500	292 07	1 06
Carpets,	296	5,094	288 07	97
Cotton yarns and fabrics,	295	795	280 10	95
Curtains and upholstery goods,	293	1,932	274 66	94
Cassimeres and worsteds,	295	3,924	266 96	90
Tapes, trimmings, etc.,	301	1,837	265 12	88
Shoddy and waste,	274	41	261 59	95
Knit goods—underwear,	291	5,020	238 14	82
Woolen yarns and fabrics,	282	2,979	232 22	82
Hosiery,	289	9,969	223 51	77
Hats,	249	239	195 00	78
Totals and averages,	291	39,035	\$263 01	\$0 90

PERSONS, TIME, EARNINGS AND WAGES, BY CLASSIFICATION, MALES,
FEMALES AND CHILDREN IN COTTON AND WOOLEN MANUFACTUR-
ORIES—Continued.

CHILDREN—BETWEEN 13 AND 16.

What Manufactured.	Days.	Number of chil- dren.	Average yearly earnings.	Average daily wage.
Cotton and woolen yarns and fabrics,	262	123	\$237 08	\$0 90
Dress goods,	298	474	219 83	74
Plushes, mohairs, etc.,	304	38	215 11	71
Blankets, flannels, etc.,	286	298	179 37	63
Curtains and upholstery goods,	293	666	178 69	61
Shoddy and waste,	274	16	177 12	65
Cotton yarns and fabrics,	295	395	175 22	59
Cassimeres and worsteds,	295	691	160 64	54
Damasks, covers, etc.,	298	116	160 10	54
Woolen yarns and fabrics,	282	1,245	157 94	56
Miscellaneous cotton and wool,	295	103	153 58	52
Carpets,	296	585	151 18	51
Tapes, trimmings, etc.,	301	286	149 27	50
Cotton fabrics,	275	248	147 10	53
Knit goods—underwear,	291	733	138 12	47
Hosiery,	289	3,480	132 11	46
Hats,	249	78	95 47	38
Totals and averages,	291	9,575	\$152 91	\$0 53

LOCATION OF THE 813 ESTABLISHMENTS EMBRACED IN THE FORE-
GOING PRESENTATION OF COTTON AND WOOL MANUFACTURE FOR
1899.

Location.	Mills.
Philadelphia,	489
Academy Corners,	1
Adamstown,	3
Addingham,	2
Annvile,	1
Allensville,	1
Allentown,	5
Apollo,	1
Antes Fort,	1
Ardmore,	2
Aston Mills,	1
Auburn,	1
Avon,	1
Bath,	1
Bells Landing,	1
Bethlehem, South,	3
Birdsboro,	1
Bixler,	1
Bloomsburg,	2
Boyerstown,	2
Bridgeport,	4
Bristol,	5
Brookville,	2
Burnt Cabin,	1
Canton,	1
Cardington,	2
Carlisle,	1
Centreport,	1
Chambersburg,	2
Cheltenham,	1
Chester,	15
Clifton Heights,	4
Coatesville,	1
Collingdale,	1
Columbia,	1
Conshohocken,	5
Coopersburg,	1
Craigsville,	1
Cressona,	1
Crum Lynne,	1
Curwensville,	1
Danville,	1
Darby,	3
Downingtown,	1

Location.	Mills.
Draco,	1
Duncannon,	1
East Brook,	1
Easton,	1
Ebensburg,	1
Eden,	1
Elizabethville,	1
Emulenton,	1
Ephrata,	1
Fleetwood,	1
Forksville,	1
Georgetown,	1
Gladwyne,	2
Glen Riddle,	1
Glen Rock,	1
Greencastle,	1
Green Springs,	1
Greenville,	1
Grill,	1
Hamburg,	2
Harrisburg,	1
Hawley,	1
Hellertown,	1
Hickox,	1
Hazleton,	1
Highspire,	1
Honesdale,	1
Houserville,	1
Hughesville,	1
Hulmeville,	1
Hummelstown,	2
Huntingdon,	1
Indiana,	1
Jersey Shore,	1
Kantner,	1
Kile,	1
Kutztown,	1
Lancaster,	2
Landenburg,	1
Langville,	1
Lansdowne,	1
Lenhartville,	1
Lenni,	2
Lewisburg,	2
Lewistown,	1
Listonburg,	1
Lititz,	1
Lockport Station,	1

Location.	Mills.
Lykens,	2
McAlevy's Fort,	1
Macungie,	1
Mahanoy City,	1
Manheim,	1
Mansfield,	1
Maria,	1
Mechanicsburg,	1
Middletown,	1
Milford Station,	1
Millersburg,	1
Milroy,	1
Milton,	2
Millville,	1
Minersville,	1
Mohns' Store,	7
Mohrsville,	1
Montrose,	1
Mordeauville,	1
Mount Holly Springs,	1
Mount Joy,	2
Muncy,	1
Nanticoke,	1
Nazareth,	3
Nescopeck,	1
New Berlinville,	1
New Cumberland,	3
New Lebanon,	1
Newville,	1
Norristown,	5
Oak Hall Station,	1
Oakland Mills,	1
Oreland,	1
Orwigsburg,	1
Palmyra,	1
Parker Ford,	1
Penn Run,	1
Phoenixville,	6
Pickering,	1
Pittston,	2
Pleasant Mount,	1
Plymouth,	2
Pottstown,	2
Pottsville,	7
Reading,	31
Reedsville,	1
Reinolds,	1
Reynoldsville,	1

Industries.	Mills.
Reigelsville,	1
Robeson,	1
Royersford,	2
Sandy Lake,	1
Schuylkill Haven,	11
Seranton,	2
Shamokin,	3
Sherman,	1
Shickshinny,	1
Shillington,	1
Shoemakersville,	1
Slatington,	1
Somerset,	1
Souderton,	1
Spartanburg,	2
Spring City,	3
Spring Hope,	1
Steelton,	2
Stony Creek Mills,	1
Stroudsburg,	2
Sunbury,	1
Swedeland,	1
Thurlow,	2
Tippecanoe,	1
Titusville,	1
Trainor,	1
Trucksville,	1
Upper Black Eddy,	1
Upland,	1
Wales,	1
Wallingford,	2
Waterside,	1
Waynesboro,	1
Wellsboro,	1
West Earl,	1
West Lebanon,	1
Wiconisco,	1
Wilkes-Barre,	4
Williamsport,	2
Williamstown,	2
Woolrich,	1
Womelsdorf,	1
Worthington,	1
York,	3
York Springs,	1

AVERAGE DAILY WAGE.

The presentation of average daily wage herewith given is taken from the leading industries that go to make up our statistics for 1899, and unless specified as male or female, represents not only skilled and unskilled labor, but men and boys, and women and children. Where no sex separation is specified, it means the average daily wage of all workmen on the pay roll, and does not include salaried people nor office force. The presentation represents a business done of \$682,879,564; an aggregate wages paid of \$132,962,927; and an employment of 285,987 persons.

Industries.	Daily wage.
Wire nails,	\$2 53
Steam pumps,	2 46
Tin plate (black plate works),	2 36
Steel billets, slabs, blooms, etc.,	2 33
Tool steel,	2 32
Stoves, heaters, ranges, etc.,	2 11
Iron and steel forgings,	2 10
Saws,	2 05
Locomotives and cars built and repaired,	2 00
Scales,	2 00
Iron specialties,	1 97
Iron and steel rolled into finished form,	1 95
Wrought iron pipe and tubes,	1 94
Carriage and wagon springs,	1 92
Locomotives and stationary engines, etc.,	1 91
Iron vessels and engines,	1 87
Shovels, spades, scoops, etc.,	1 85
Curtains and upholstery goods (males),	1 85
Machinery,	1 84
Wagon and carriage axles,	1 82
Engines and boilers,	1 82
Electrical supplies,	1 82
Wrenches, picks, etc.,	1 80
Bookbinding,	1 75
Building and structural iron work,	\$1 74
Pianos and organs,	1 73
Ornamental metal work,	1 71
Cars, springs, axles and railway supplies,	1 71
Safes and vault doors,	1 70
Malleable iron,	1 70
Foundries and machine shops,	1 66
Building brick,	1 66
Agricultural implements,	1 64
Carpets (males),	1 64
Window glass, bottle and table goods,	1 63

Location.	Daily wage.
Steel castings,	1 63
Cotton fabrics (males),	1 62
Wire rope,	1 61
Tapes, braids, trimming, webbing, etc. (males),	1 61
Bicycles,	1 61
Cotton and woolen yarns and fabrics (males),	1 59
Edge tools,	1 59
Iron chains,	1 59
Boilers, tanks, stacks, etc.,	1 58
Wire,	1 55
Fire brick,	1 55
Average in the manufacture of all kinds of cotton and wool (males), ..	1 55
Men's, women's, misses' and children's shoes (males),	1 55
Plumbers' supplies,	1 54
Hardware specialties,	1 54
Iron and steel bridges,	1 54
Brass, copper and bronze goods,	1 54
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